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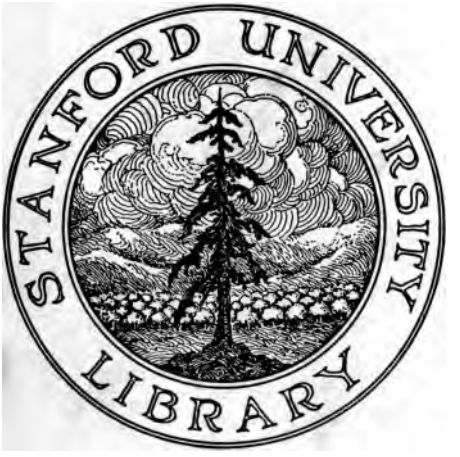

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THE Amazon Provinces of Peru

As a Field for European Emigration.

A STATISTICAL AND GEOGRAPHICAL REVIEW OF THE COUNTRY AND ITS RESOURCES,

INCLUDING THE

GOLD AND SILVER MINES

TOGETHER WITH

A mass of Useful and Valuable Information,

WITH

MAP AND ILLUSTRATIONS.

BY

H. GUILLAUME, F.R.G.S.

Consul-General for Peru, in Southampton,

DELEGATE MEMBER DE LA SOCIEDAD OBREROS DEL PORVENIR DE AMAZONAS DEL PERU,
MEMBER OF THE ASSOCIATION OF FOREIGN CONSULS.

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LONDON, W.C.

TO HIS EXCELLENCY

GENERAL ANDRES AVELINO CACERES,

President of the Republic of Peru,

WITH THE HOPE THAT IT MAY ASSIST HIM

IN THE NOBLE WORK

WHICH IS THE OBJECT OF HIS LIFE,

viz.:—

THE ADVANCEMENT OF THE INTERESTS OF PERU,

This Work is most respectfully Dedicated,

BY HIS VERY HUMBLE AND OBEDIENT SERVANT,

THE AUTHOR.

PREFACE.

THE present treatise owes its origin to a small pamphlet placed in the writer's hands on the 8th of April, 1886, by Señor Don Alejandro de Ydiaquez, then on the point or embarking from Southampton for Peru. The pamphlet was issued in Lima, December, 1885, by a society known as "La Sociedad Obreros del Porvenir de Amazonas del Peru" (the Society for the Exploration and Colonisation of Peru), which has for its president the enlightened Dr. Albornoz, of the city of Chachapoyas, and the writer was urged to make a translation for the benefit of the English people.

From that time until now the author has unceasingly endeavoured to accomplish that object, having only delayed doing so until he was in possession of further information respecting the vast resources of that fertile country, so as to place a fuller description of it before those for whom it was intended.

It appeared to him that the efforts that have been, and are still being, made by the Society are so laudable that, when the facts become fully known in this country, Englishmen would not be found wanting to join in the important work.

Notwithstanding the many favourable reports made by the English scientific travellers, Clements R. Markham, J. B. Minchin, Simpson, Bates, and others, who have from time to time visited these regions and reported on their great natural resources, it seems incredible that their noble efforts, made for the benefit of the people of Europe, should have as yet borne no fruit; and that this immense territory, so fertile and abounding in the richest mercantile products, which would be of such great value to European industry in general and that of England in particular, should still remain ignored by commercial enterprise.

Not long since, when the subject was prominently brought before one of the meetings of the Royal Geographical Society, by Mr. J. B. Minchin, in a paper giving the result of his travels in Eastern Bolivia, the noble chairman, Lord Aberdare, expressed his opinion as follows:—

"I cannot understand how it is that Englishmen take so much interest in Africa and not in South America. I suppose it is only on account of the spirited adventures of Livingstone and others, which have aroused attention to the country."

Professor Raimondi, the eminent scientist, lately said:—

"It appears to be a thing incredible that Peru—this land of proverbial wealth—which at the time of the Spanish Conquest filled with gold the chests of the exhausted Spanish Treasury, has been up till recently, and one may say up to the present time, almost a *terra incognita* to the people of Europe."

The object of this treatise is to set forth in an unbiassed account the interior of the country, and the resources of its vast uncultivated regions, without ignoring the difficulties and obstacles which have to be overcome.

In order to clearly show the physical and geographical position of these regions, resource has been had to the valuable and reliable reports made by Peruvian, English, German, and other scientific explorers, down to the present time.

It will be seen from these reports, that the chief impediment to the development of the resources of the interior of Peru has hitherto been the want of communication with the coast, in consequence of the stupendous mountains which form so formidable a barrier, and seem to say to man, "Thus far shalt thou go, and no further;" but this gigantic obstacle is now about to be overcome by the extension of the great lines of railway, which will be the means of attracting emigration to the country, and thereby developing its resources, and thus a great impetus to trade and commerce will be given, to the mutual benefit of Peru and the populous countries of Europe.

That Peru is a country desirous of taking her proper place amongst the nations of the world is evidenced by its gigantic lines of railway, which have been constructed at an immense expenditure of toil and money. These works have been designed not so much for the benefit of her scanty population, as for the advantage of the population which, it is hoped, will be attracted thither.

Like her prosperous sister, the Argentine Republic, Peru, unable to colonise these vast territories herself, generously offers them to all honest labourers, who may come

and share with her the vast natural resources they contain, and who will be guaranteed a permanent title to the land equally with natural-born subjects.

It is satisfactory to perceive that the commendable efforts of Peru will probably soon be crowned with success, by means of the Panama Canal. The day when that great work is completed will mark a new era in the history of the country, and she will enter upon a new career of progress and prosperity.

It will be seen from the following chapters how varied and rich are the resources of the country, and that the colonist will not be confined, as in other less favoured lands, to the growing of corn crops, with which the markets of the world are already so abundantly supplied, but will be enabled to cultivate crops in greater demand in the markets of Europe, and which are found in these regions, growing naturally, and in boundless luxuriance.

In the present treatise, the subject of mines has been but lightly touched upon, being so extensive; the author of the present work is compiling another, dealing exclusively with that subject.

The author begs to acknowledge with deep gratitude, his indebtedness to the following gentlemen :—

Professor Antonio Raimondi and Señor Leonardo Pflücker y Rico, for their kindness in permitting him to translate passages from their works; Señor Don A. Espinosa, late secretary to the Legation, London; Don Benjamin Alvarez, Consul-General of Peru, Liverpool; Mr. A. R. Robertson, Consul for Peru, London; Herr Jean Nötzli mineralogist and explorer, Cajamarca, Peru; Mr. Otto

Ringeling, Lima; Mr. J. D. Osmers, botanist, and others, for the valuable information and assistance which they have so kindly rendered him.

His aim has been to second the laudable efforts made by the illustrious chief of the State, and all patriotic Peruvians, to bring these extensive undeveloped regions of Peru within the orbit of Christianity and civilisation; and he expresses a fervent hope that at the present time, when emigration forms an all-absorbing topic in this country, the claims of Peru, as set forth in this work, will not be overlooked by those engaged in forwarding the various schemes for colonisation, and seeking favourable homes for the surplus population of Great Britain; and may that hopeful spirit of enterprise be ever innate in the breasts of Englishmen, as described by the poet Campbell:—

> The pride to rear an independent shed,
> And give the lips we love unborrow'd bread,
>
> * * * * * *
>
> To skirt our home with harvests widely sown,
> And call the blooming landscape all our own,
> Our children's heritage, in prospect long—
> These are the hopes, high-minded hopes and strong,
> That beckon England's wanderers o'er the brine,
> To realms where foreign constellations shine.

H. GUILLAUME.

PERUVIAN CONSULATE, SOUTHAMPTON,
August, 1887.

The following is a copy of a letter the author has received from Clements R. Markham, Esq., C.B., F.R.S., Secretary to the Royal Geographical Society, &c., &c., the distinguished English traveller and scientist, who for many years travelled in Peru making scientific studies, and who possesses an intimate knowledge of the country.

"21, ECCLESTON SQUARE,
"*May* 10, 1887.

"DEAR SIR,

"I rejoice to hear that you are bringing out a work on the 'Amazon Provinces of Peru,' and I trust that its publication will have the effect of promoting colonisation, and spreading a more correct knowledge of the resources of Peru.

"I consider that the slopes of the Eastern Andes, within the Republic of Peru, are very suitable for European colonisation, and offer an admirable field for industrial enterprise.

"Yours faithfully,

"CLEMENTS R. MARKHAM."

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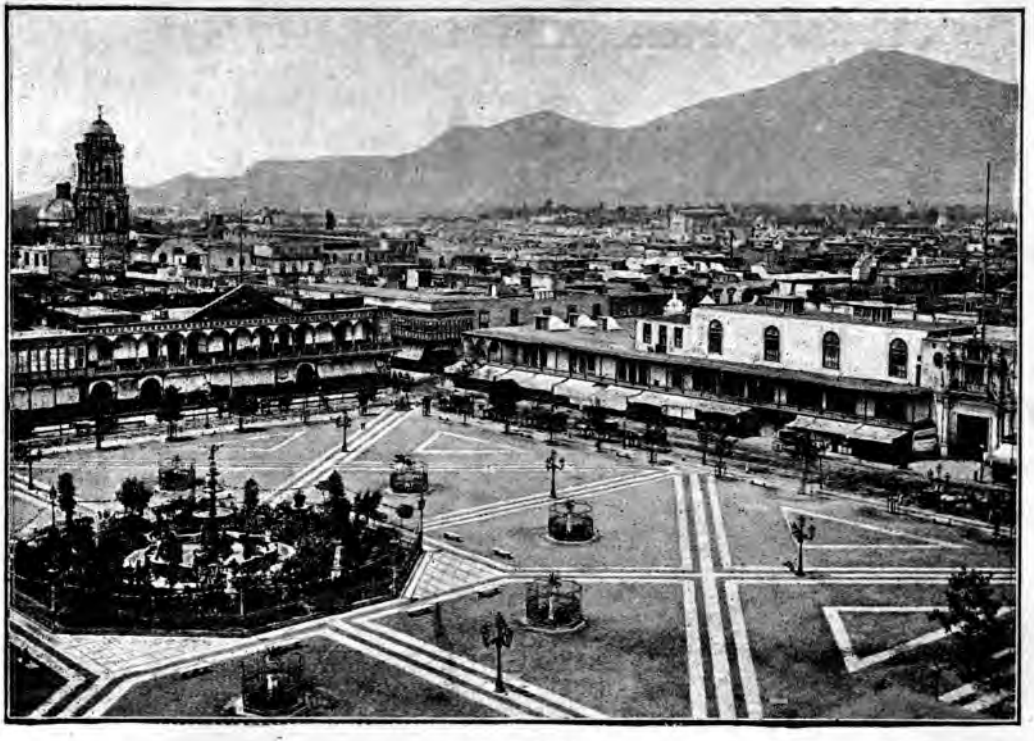


CITY OF LIMA. *Face page* 1.

THE AMAZON PROVINCES OF PERU.

CHAPTER I.

Extent, Boundaries, General Description, Climate and History.

EXTENT AND BOUNDARIES.

PERU is situated in South America, between the parallel 1° S. and 19° S. latitude; between 68° and 81° 20′ 45″ longitude W. On the west it is washed by the Pacific Ocean, having an extensive coast-line of 1,300 miles. It is bounded on the north by the republics of Equador and Colombia, on the east by the Brazils and Bolivia, and on the south by Bolivia and Chili. The most northern port on the Pacific is Tumbes. The boundary-line commences a short distance north of that port; it runs southward as far as the river Macara, following its course until about lat. 3°, long. 79°, thence it rises in a north-easterly direction by Andoas, to Santa Rosa, which is the extreme northern point of Peru. The line then passes from the river Napo to the Brazilian frontier, which commences at the confluence of the Apaporis with the Yapura, 1° 31′ 29″ 5 S. lat., 69° 24′ 55″ 5 W. long., thence to the point of juncture of the river Catuhé with the Putumayo, 2° 53′ 12″ 8 S. lat., 69° 40′ 28″ 55 W. long.; it thence descends, cutting the Putumayo three times, to San Antonio, 4° 13′ 21″ S. lat., 69° 54″ 00 W. long., as fixed by the Peruvian Brazilian Commission of 1873. The Commission of 1874 fixed the eastern boundary as follows:—"The line descends the rivers Guaporé and Mamoré, which form the Madera, to a point half-way between the Amazon and

the mouth of the Mamoré (6° 52 S. lat), thence it passes east to west to the river Yavari, 6° 59′ 29″ 5 S. lat., 74° 6′ 26″ 69 W. long., ascending that river to the Marañon."

The boundaries between Peru and Bolivia have never been definitely fixed, but it is understood the line follows the river Beni to the Andes, traversing the lake Titicaca, and thence follows the Andes until it reaches the river Camarones,[1] which river now forms the boundary between Peru and Chili, as determined by the treaty of peace. The area of Peruvian territory is 500,000 square miles, being as large as England, France, Spain, and Portugal put together.

CONFIGURATION OF THE COUNTRY.

The Andes range of mountains, after quitting Bolivia, branches into three colossal chains, extending inland for a distance of 250 miles, viz., the western chain, which is known as the Cordillera de la Costa (coast range of mountains), the Central Cordillera, which attains a height of 20,000 feet, with passes at 15,000 feet, and the Andes,[2] or Eastern Cordillera, which is of lesser elevation than the other ranges. Peru is therefore divided into four distinct longitudinal regions, viz., the Coast, the Puna, the Sierra, and the Montaña.

(1.) The first, lying along the Pacific slope, enjoys a sunny sky, but has the peculiarity that rain never falls there, and thus, for the want of moisture, it is for the most part a sandy desert; but where it is broken by streams and valleys there is surprising fertility, and the sugar-cane and cotton-plant grow in great luxuriance.

(2.) The Puna comprises the high table-lands and cold regions lying between the coast and central ranges, which is the home of the Peruvian sheep, the llama, alpaca, vicuña, &c., and also of the chinchilla, a small animal like a rabbit,

[1] Chili holds territory north of this boundary to the river Sama until 1893.

[2] The name Andes is derived from the Quichua word *Antasuya*, *Anta* signifying metal and *suya* a district. In common parlance *suya* was dropped and the termination *a* in *Anta* converted into *is*. The Spaniards, according to their practice of corrupting the words of the Quichua language, substituted *Andes* for *Antis*.—(Garcilasso de la Vega.) The historian, General Miller, however, supposes that it was from "Andenes," as the steps or terraces, which were cut in the mountains for the purpose of cultivation, were called by the Spaniards.

well known for its valuable fur. It is subject to rain and snow in the winter season.

(3.) The Sierra is also a high table-land of lesser elevation, lying between the central and eastern range, and has a temperate climate, being subject to snow and rain during the winter season. This is the region for the growth of corn, barley, potatoes, and other European products, and here the valuable Peruvian sheep are reared, as in the Puna. It is also the region of mines and precious metals. These high lands extend from 50 to 100 miles, and are about 950 miles in length. In these regions are situate the cities of Cuzco, 11,380 feet above the sea, Ayacucha, and Cerro de Pasco.

(4.) The fourth region—the Montaña or forest country—is that immense region lying along the slopes of the third or eastern range of the Andes mountains, and extends to the Amazon. It remains as yet in its primitive state of nature, and is extremely interesting from the grandeur of its magnificent forest scenery. It has been described by many writers as worthy of the name of "the Ophir of Solomon," on account of the many rich and valuable products which abound there. It consists, for the most part, of one boundless forest, in which flourish the india-rubber and cinchona-trees, as well as the coffee, cocoa, and vanilla, while torrent streams from the mountain bring down with them rich deposits of gold. The great network of rivers in this region offers a wide field of enterprise to steam navigation by way of the Amazon; thus one of the richest quarters of the globe is waiting to be developed.

CLIMATE.

By reason of its lofty ranges of mountains, Peru, although situated in the tropics, has the advantage of enjoying a great variety of climate. In many parts the salubrity of the climate is such that it is even superior to some of the healthiest cities of Europe, and offers, according to the latitude and peculiar circumstances of the localities, desirable advantages to European colonists. On the Pacific coast, at Lima and other towns, the heat of the sun is tempered by cool S.E. breezes, and the temperature throughout the year is very

suitable to Europeans. At Lima the sun is scarcely ever hidden by clouds for a day throughout the whole year. The maximum temperature at Lima in the summer season is 78°, and in the winter season (June, July, August) 59°. The so-called winter season is like an English spring.[1] The Pacific coast of South America is much lower in temperature in comparison with the eastern or Brazilian coast of the same latitude, by reason of the so-called "Humboldt current," which, flowing up from the Antarctic regions, and running parallel to the coast, has the effect of lowering the temperature. Mr. John Ball, F.R.S., in his isothermal map lately published, draws particular attention to this current, by which the climate of Peru is so much benefited. The mean annual temperature of the Amazon valley from Manaos to Tabatinga is 80°. Moyobamba, which stands 2,700 feet above the sea, has a mean annual temperature of 77°. The climate here is delightful. Nature is so prodigal that everybody can get a living except physicians. Chachapoyas, another most delightful town, is situated 7,600 feet above the sea-level, has a temperature ranging from 40° to 70°, with a mean annual temperature of 62° Fahr.

The Pampas of Sacramento at Sarayacu has a minimum and maximum temperature of 75° and 85°, the altitude above the sea at Sarayacu being 165 mètres=542 feet. The eastern provinces, being at a considerable elevation above the sea-level, no part can be called unhealthy. The interior of the forests, through which the rays of the sun have not penetrated for centuries, are as free from malaria as the mountains. There are two seasons in the Montaña or forest country—the dry season, from May to October, and the rainy season, from November to April. The largest amount of rainfall occurs in February and March; the quantity of rain that falls is probably about seventy inches. The heavy rains carry off all the decaying matter, and the trade winds, which are continually blowing towards the Atlantic, follow the course of the river, and, combined with the current of the river, no doubt cause the salubrity of the climate along the Amazon. The same may be said

[1] In the mornings of the winter months the sky along the coast is frequently obscured by fog, "niebla," or by a falling mist called "garua," which is dispelled by the sun at noon.

of all the large tributaries to the Marañon, as the Napo, Ucayali, and Huallaga; malarial fevers are almost confined to the small rivers.

Professor Orton[1] writes:—"Epidemics are unknown, and dysentery is of comparatively rare occurrence on the Marañon. I repeat what I have said elsewhere, that the entire main tract of the Amazon, from Para to Borja, but especially the Marañon, is as healthy as any tropical river in the world. The main river is certainly as healthy as the Mississippi. In my judgment, the journey is as healthy as a pilgrimage to Egypt, and far more refreshing than any number of wanderings in the Adirondock. I have crossed the continent three times, and the Andes six times, and have not been ill a moment."

THE SALUBRITY OF THE SIERRA.

Mr. Clements R. Markham[2] writes:—"From Cerro de Pasco there is a considerable descent southwards to the city of Jauja, the climate of which is said to be almost perfect for patients with pulmonary complaints. It is a charming little sierra town, and near it, on the eastern watershed, is Tarma, another sierra town, beautifully situated in an amphitheatre of mountains, clothed to their summits with waving fields of barley. The climate is delightful, so that no doctor can gain a living, and the one resident surgeon depends on a salary from the tax on spirits and the tolls on the bridge of Oroya."

It was at the above-mentioned sierra town that Don Manuel Pardo resided for some time for the benefit of his health. He has written a pamphlet, in which he has given a full description of this delightful place, its mineral wealth, and its salubrious and bracing air. English and American doctors have recommended patients to the Andes mountains, and magic cures have been effected of aggravated forms of phthisis pulmonalis.

Mr. Hilbck, the Consul-General for Germany in Peru, with whom the author had the honour of making acquaintance on the 10th March, 1887, at Southampton, on his

[1] "The Andes and Amazon," Dr. James Orton. New York: Harper Bros.

[2] "Peru," Clements R. Markham, C.B. London: Sampson Low & Co., 1880.

returning to Peru, stated that he had resided thirteen years at Piura and Caxamarca, and had never experienced any illness whatever. "Peru," he said, "is one of the healthiest countries of the world, and is highly suitable for European emigration, which is so much needed."

Mr. Jean Nötzli, an eminent geologist and mining engineer, informed the author that he had resided fifteen years in the Amazon regions and interior parts of Peru without ever having suffered any ill effects from the climate, but that he had always enjoyed the best of health there. (*See* his report, Chapter V.)

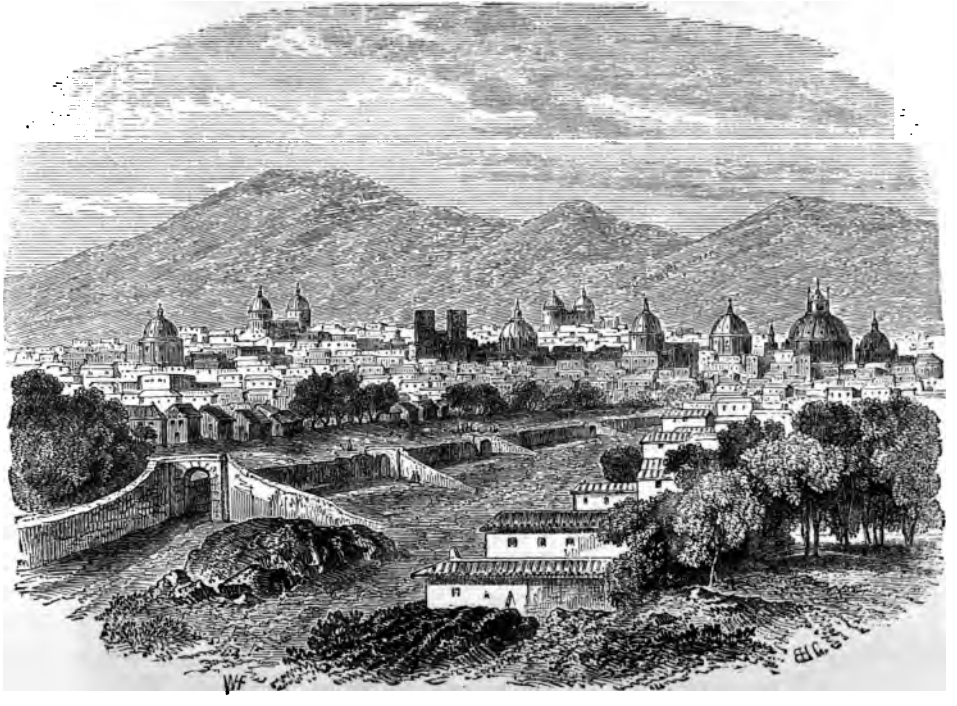
LONGEVITY OF LIFE AMONGST THE INDIANS.

Cases of longevity of life are numerous. The Indians are, on the average, remarkable for longevity, though they frequently shorten their lives by the intemperate use of strong drinks. Instances are not rare of Indians living to 120 or 130 years of age, and retaining full possession of their bodily and mental powers. Stevenson writes as follows: "On examining the church registers of Barranca, I found that within an interval of seven years, eleven Indians had been interred whose united ages amounted to 1,207, being an average of 109 years to each. In the year 1839 there was living in the valley of the Jauja an Indian who, according to the baptismal register shown to me by the priest, was born in the year 1697, being 142 years old. He himself declared that he had not for the space of ninety years tasted a drop of water, having drunk nothing but chicha.[1] Since he was eleven years of age he had masticated coca at least three times a day, and had eaten animal food only on Sundays; on all the other days of the week he lived on maize, quinua, and barley. The Indians retain their teeth and hair in extreme old age, and it is remarkable that the latter never becomes white and very seldom even grey. Those individuals, whose advanced ages have been mentioned above, had all fine black hair."

MINERAL SPRINGS.

No country is so bountifully supplied with so many mineral and warm springs as Peru. There are 120 mineral

[1] Chicha, the fermented juice of maize or mandioca.



CITY OF CUZCO. *Face page 7.*

springs and warm baths, ranging from 16° to 91°. They are situated principally in the central regions—viz., Sierra and Cordillera, and they succeed each other almost without interruption from one extremity of the Republic to the other.

ANCIENT HISTORY OF PERU.

The history of the conquest of Peru has been recorded by the masterly hand of Prescott, but its ancient history, previous to the time of the Incas, remains yet to be written. At the time the Spaniards entered Peru they found it under the Inca[1] dynasty, which commenced with Manco-Ccapac[2] about three centuries previously. The name Peru was not known to the natives, the country was so named by the Spaniards, but historians are not agreed upon the source of its derivation. According to Garcilasso de la Vega, Peru was the ancient Ophir, whence Solomon drew such stores of wealth, which has in time been corrupted into Phiru, Piru, Peru. But it is more generally believed by Peruvians that their country derives its name from Viru, an Indian valley and river of the same name in the north of Peru, near Trujillo, where Pizarro formed his first city, and named it after his birthplace in Spain. The Indians called that district Viru, and therefore the old Spaniards believed it to be the name of the whole country, and which has since been corrupted to Peru. Ttahuantin-suya,[3] or the four provinces, was the name the Incas called their country, which was divided into four provinces, or departments, which were subdivided into smaller sections, similar to the hundreds and tythings of our Anglo-Saxon forefathers. Cuzco[4] was the capital where the Incas built their Temple to the Sun, which they worshipped and called their father, and denominated themselves "Children of the Sun."

Prescott says: "Cuzco was the 'holy city,' the great Temple of the Sun was the most magnificent structure in the New World, and unsurpassed, probably, in the costliness of its decorations by any building in the Old. The great temple was studded with gold plates, and the broad

[1] The word *Inca* in the Quichua dialect means *king* or *lord.*

[2] *Ccapac* signified great or powerful. It was applied to several of the successors of Manco.

[3] *Thahua* means four, *suya* a province.

[4] *Cuzco* means navel; signifies here the central region.

parterres adjoining it sparkled with gold in the many forms of vegetable life, which were skilfully imitated in gold and silver. On certain festivals the Incas used to exhibit their valuables in the great square at Cuzco, and the Spanish historian Sarmiento writes :—"It is certain that neither in Jerusalem, Rome, nor in Persia, nor in any other part of the world, was there ever collected in one place such a profuse magnificence of treasure in gold, silver, and jewels as at this place Cuzco."

With respect to the Inca dynasty, the historian Trezier states he saw the pictures of the Inca emperors painted by the Indians at Cuzco, in the proper habits, as large as life. He points out that Garcilasso de la Vega and Montalvo only mention eight emperors, whereas, according to the pictures, there were twelve, whose names with those of their wives were as follows :—

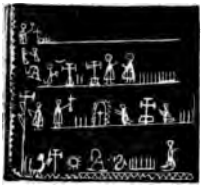
A.D.	The Emperors.	Their Wives.
1.—1021.	Manco Ccapac.	Mama Oella Vako.
2.—1061.	Sinchi Lloccac.	Kora.
3.—1091.	Lloque Yupanqui.[1]	Anavarqui.
4.—1126.	Mayta Ccapac.	Yachi.
5.—1156.	Ccapac Yupanqui.	Klava.
6.—1197.	Inca Lloccac.	Mikay.
7.—1249.	Yahuar Huaccac.	Chisia.
8.—1289.	Viraccocha.	Runtu.
9.—1340.	Pachacutec.	Anavarqui.
10.—1400.	Inca Yupanqui.	Chimpa Oello.
11.—1439.	Tupac Yupanqui.	Mama Oello.
12.—1475.	Guayna Ccapac.	Koia Pilico Vaco.
1526.	Huascar[2] and Atahualpa, who were jointly reigning at the time of the conquest,[3] the former over the northern part and the latter over the southern part of the kingdom.[4]	

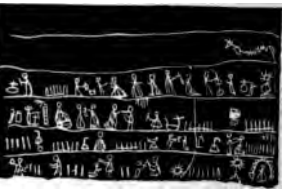
[1] *Yupanqui* signifies rich of all virtues.

[2] *Huascar* in the Quichua dialect signifies "Cable." The reason of its being given to the heir-apparent is remarkable. According to the Spanish writers Zarate and Garcilasso, Guayna Ccapac celebrated the birth of the prince by a festival, in which he introduced a massive gold chain for the nobles to hold in their hands as they performed their national dances. The chain was seven hundred feet long, with links nearly as big round as a man's wrist.

[3] In 1780 an unsuccessful attempt was made to restore the Inca dynasty by the Inca Cundurcimca, who assumed the name of Tupac Amaru. He succumbed after occupation of six provinces, and was sentenced to a very cruel death.

[4] Prescott says :—"Their father, Guayna Ccapac, so fondly loved his younger son, Atahualpa, that on his death-bed he, contrary to the





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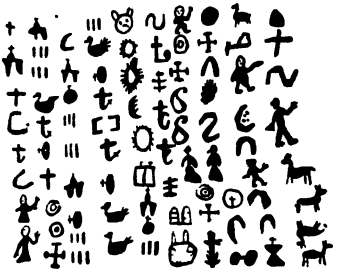


Found at Paucartamba (Reduced to one-fifth).

SPECIMENS OF ANCIENT PERUVIAN WRITING.

These writings, found in tombs, are written on tissue which had previously been dipped in gum or other preservative. The upper plates represent the crucifixion of Christ, both are written in the same ideo-graphical system that the Indians knew before the conque-

Face page 9.

ARCHÆOLOGICAL REMAINS.

Throughout Peru there are extensive archæological remains, consisting of ancient fortresses, aqueducts, and curiously-carved rocks covered with hieroglyphical signs, respecting which no information has ever been obtained from the descendants of the Incas, and which remain to this day a problem for the scientific to solve.[1] It is the opinion of Dr. Thomas J. Hutchinson,[2] late H.B.M. Consul to Peru, that these ancient monuments attest the former existence of a powerful and civilised empire many centuries anterior to the era of the Inca dynasty. He bases his opinion upon the many beautifully-executed objects of art in terra-cotta, silver, and gold, the exquisite workmanship displayed in the construction of the buildings, &c., which cannot be considered the work of savages but that of a people possessing considerable knowledge of scientific and mechanical art, and says that these remains and relics bear a most striking similarity to the description given by Dr. Schliemann of those discovered at Homer's Ilium. He is supported in his opinion by Dr. Archibald Smith, another explorer of Peruvian antiquities, who says :—"The gigantic architecture of Peru points to the Cyclopean family, the founders of the Temple of Babel and of the Egyptian Pyramids." In general, however, modern Peruvians do not take any great interest in the study of antiquities. Notwithstanding, there are several very fine collections in Lima owned by private persons; worthy of mention are those of Dr. Macedo and Señor Saenz. It is satisfactory to notice that these relics of past

established usages of the realm, divided the empire between his two sons, and urged them to live in amity with each other, while he recommended harmony between the successors to his authority. With his dying breath he subverted the fundamental laws of the empire, and left in this very division of it the seeds of inevitable discord. This it was that led to the country falling so easy a prey to the Spanish adventurers."

[1] Mr. A. Espinosa says :—"As far as the external appearance and the system of construction of the Incas are concerned, there is in my opinion good reason to believe that there is some close relationship between the culture of the Incas and of the Egyptians and Assyrians."

[2] Dr. Hutchinson has published a work entitled "Two Years in Peru," in which he gives a most interesting account of the archæological remains of the country.

ages are beginning to receive attention at the hands of the Peruvian Government, as well as of certain private persons, and collections are now being made of these rare archæological relics, which lead to the hope that science will some day be rewarded by the discovery of the missing link that will throw light on the hidden history of this interesting country.

MODERN HISTORY OF PERU.

The discovery of America by Columbus in 1492 excited a spirit of adventure in Spain, and an eager desire was kindled in the breasts of Spaniards to profit by the work of the great navigator. Thereupon expeditions went forth, and the adventurers were rewarded by the conquest of Mexico. Francisco Pizarro, an officer of intrepid courage, and possessing remarkable powers of endurance, who had taken part in the conquest of Mexico, started, in the year 1524, on the project of extending Spanish conquests in the southern coast of America. His first voyage resulted in making valuable discoveries of the country, and he returned for reinforcements. In February, 1531, Pizarro again sailed from Panama with a small fleet of ships, and with a force consisting of 186 soldiers, of whom thirty-six were horsemen, and succeeded in effecting a safe landing at Tumbez, in the north of Peru. Fortunately for Pizarro, a civil war was then raging between the two royal princes of the Inca dynasty, Atahualpa and Huascar, and, under the pretence of aiding the former against the latter, and using great strategy with his small force, he accomplished the marvellous feat of conquering the whole country from the Incas without even a battle. History does not relate so great a prize being so easily won by any nation. Peru, thereupon, became subject to the Spanish Crown, and remained one of her richest possessions from the year 1533 until the 23rd June, 1820. In the year 1810 the Spanish colonies began to rise against the mother country. Chili first obtained her independence, and in 1820 General San Martin, a native of Buenos Ayres, who liberated Chili, came with an army to Lima and drove out the Spaniards, and the independence of Peru was proclaimed on the 28th of July, 1821. San Martin was named Protector of Peru, but

resigned his authority in August, 1822, upon the arrival of Bolivar, the Columbian General, who entered Lima in February, 1824, and was made Dictator of Peru. In 1825 Bolivar resigned the dictatorship, having previously contrived to separate the southern provinces from the northern, and to convert the latter into a new republic, which adopted the name of Bolivia.

There is one name which will be ever memorable in the annals of the struggle for independence in South America, —that of Lord Cochrane (Earl Dundonald), whose prowess was one of the chief causes in enabling Peru to shake off the yoke of the Spanish dynasty. This brave English nobleman, as admiral of the Chilian fleet, sailed from Valparaiso in September, 1819, to assist Peru. After displaying indomitable pluck in fighting the Spaniards and capturing their treasure ships, he challenged the Viceroy to fight him ship for ship, which, of course, was not accepted. But Lord Cochrane's greatest feat was the capturing of the Spanish war frigate *Esmeralda* in Callao harbour. He accomplished this brilliant achievement of naval tactics by means of his boats. Boarding the frigate at night-time, himself leading his men, he captured the *Esmeralda* and all on board, though the frigate at the time, besides being guarded by twenty-two gunboats, was protected by the powerful guns of the fortress. This gallant enterprise took place at midnight November 5, 1820. Englishmen have reason to remember with pride this episode of the bravery of their gallant countryman, whose name is indelibly written in the history of the South American Republics; and Peruvians will ever remember with gratitude the great services rendered to their country by this great and brave Englishman, and in consequence have a more kindly feeling towards his countrymen than towards those of other nationalities.

For several years after gaining its independence Peru had to contend with many difficulties, caused by the struggles of ambitious military chiefs, and the progress of the young republic was materially checked. In the year 1865, General Prado was called to the presidency, and had the advantage of having in his ministry a really eminent statesman, Don Manuel Pardo, who afterwards became President; war

then broke out with Spain, and it was under General Prado's Government that Peru successfully repelled the attack of the Spanish fleet on the 2nd of May, 1866. The gallant manner in which the Peruvians fought in that severe struggle, and the heroic acts performed by them, will ever be remembered as one of the most brilliant achievements in Peru's history. On the 2nd of August, 1872, Don Manuel Pardo was elected President. During the Government of this enlightened statesman, great reforms were effected; education was promoted and placed on a satisfactory basis, the great lines of railway designed to traverse the Andes were prosecuted with much vigour, and many improvements were made in the development of the country. It must be said to his memory that Don Manuel Pardo was one of the greatest statesmen who ever ruled in South America. It is to this enlightened statesman that Peru owes the wise project of introducing European immigration, and it was through his efforts that the colony of poor Italians was successfully established in the Chanchamayo valley.[1] It is not the purpose of the present treatise to open up any matters in connexion with the late unfortunate war, which commenced in 1879 and was concluded by the treaty of peace of Ancon, dated 30th October, 1883. It seems only necessary to say that the struggle has left behind it remembrances of heroism and bravery displayed by the sons of Peru, who sacrificed their lives to their country's cause, and the name of the intrepid Admiral Grau, in connexion with the ship *Huascar*, will be ever recorded in the history of Peru as that of one of its greatest heroes,—

"Who nobly fell,
Disdaining fear, and deeming light the cost,
Of life itself, in glorious battle lost!"

[1] The colonisation has so successfully progressed, that there are at present very large and valuable sugar estates. Several good roads are already constructed or being made, and lately the building of a narrow gauge railroad from Tarma to Chanchamayo has been projected connecting it with the main system of railroads. The crops in the Chanchamayo are so abundant that in some cases they cannot be all gathered in from want of labour and means of conveyance. Justified hopes are being entertained that when the net of roads is finished, or the railway built, a great impulse will be given towards approximating these regions to the civilised world by means of the navigable Amazon river.—(A. Espinosa.)

And also the name of Captain (now Admiral) Aurelio Garcia y Garcia is worthy of mention, in connexion with the daring capture of the Chilian transport *Rimac* by the wooden despatch-boat *Union*.

On the 3rd of June, 1886, General Andres Avelino Caceres was unanimously elected President. No man was ever more worthy of this exalted position. Under this patriotic and much-beloved President, Peru enjoys order and peace throughout its territories, and the aspirations of both Government and people are consolidated together for the maintenance of peace and the development of the resources of the country. The progress that has been made since the late war, both administratively and commercially, is in itself a testimony to the recuperative powers of the nation.

CHAPTER II.

General Description of the Amazon Provinces.

REPORT OF THE EXPLORATION AND COLONISATION SOCIETY OF THE AMAZON PROVINCES OF PERU.

THE Society issued a report of its proceedings at a meeting held at the Athenæum, Lima, on Dec. 12, 1885, when the president, Doctor Albornoz, gave a history of the Society from its commencement, and also a full description of the resources of the Amazon Provinces of Peru, which the author has translated, and which forms the subject of the present chapter. The president stated that the Society was founded in the year 1858, under the Bishop of the diocese of Chachapoyas, Dr. Pedro Ruiz, for the object of promoting industry, commerce, Christianity, and civilisation in the Amazon regions of Peru. A full report was given of the explorations and work done by the several expeditions which had been fitted out at the Society's expense since its foundation, for carrying out the work of colonisation, particularly the cutting of a road through the forests, starting from Chisquilla, with the object of making a short route for commerce from the beautiful regions of Chachapoyas to the Amazon, or Marañon,[1] by the Cahuapanas river, which joins the Marañon below the Pongo de Manseriche.[2] The worthy president made an earnest appeal for European immigration in the following words:—

THE NECESSITY FOR IMMIGRATION.

"No country in the world can be better endowed by nature with rivers than Peru. On the one side it is favoured with the Pacific Ocean; on the other by numerous rivers,

[1] Marañon is the term given to the Upper Amazon, west of Navta, and the whole extent of its course through Peruvian territory.

[2] *Pongo* is the Indian word for "end of the hills."

which beautifully part its territory, and eventually unite to form one gigantic stream, which majestically goes and salutes the Atlantic. The existence of the King of Rivers, with its numerous tributaries, would be a great advantage to any country; more especially, then, must it be the case in Peru, where the district through which it flows is rich in every kind of mineral and vegetable product.

"The want of inhabitants is the cause that year by year there is lost millions of pounds' worth of valuable natural products, which arrive at maturity only to fall to the ground, and serve as soil for reproduction the following year. Nothing has been as yet done to remedy this state of affairs, and our forests remain still deserted; we want an abundant immigration to help us gather our produce. Fortunately, our necessity coincides with the excess of the cities of Europe and the United States; the former being at present obliged to seek in Africa a soil for its population. A more propitious opportunity cannot be presented; we must avail ourselves of it without loss of time, and endeavour to attract to our country that current of emigration, by showing the people that they can find here a more comfortable position than elsewhere.

"Our montañas (the name given to the forest regions) being of so varied a nature, the colonists can select that part which will suit their convenience, and with respect to the extent of suitable land at their disposal, the pampas of Sacramento[1] can accommodate millions of people. But we must first prepare the places to receive the

[1] *Pampas* means plains, but these are thickly covered with trees. The pampas of Sacramento comprise the region lying between the rivers Ucayali, Huallaga, Pachitea and Marañon. Its length is 300 leagues (900 miles) from north to south, and from 40 to 100 leagues, or from 120 to 300 miles, in width. Lieut. W. Smith, R.N., speaking of it in his noted travels, says:—"The pampas of Sacramento was so called from its being discovered by some newly-converted Indians in 1726 on the day of the festival of the Corpus Christi. It is remarked with apparent justice in the 'Viagerio Universal' that the two continents of America do not contain another country so favourably situated and so fertile. The climate seems very like that of the island of Madeira. During our stay at Sarayacu we registered the themometer three times a day, and its minimum and maximum were 75° and 85° Fahr., and the sun at this time passed over our zenith. A hill called San Martias, near Mayro, is said to produce gold."

immigrants, by putting the same in communication with other towns of the interior. This has been the principal object which the Society has had in view, and its first aim is to open a road through the forest to the Cahuapanas river. Its intention is to endeavour to populate the upper part of the Marañon, placing the same in communication with other towns in the interior, and particularly with the town of Chachapoyas, by which means the new places will be supplied with everything necessary for their first wants.

"There are no real obstacles which oppose the gradual development of commercial relations. We do not commence competition with one existing beforehand; therefore, we can bind together freely as much as we wish, placing ourselves in accord with persons really interested in the progress of these virgin regions.

"The Society wishes to introduce immigration in a methodical way, by opening a road to Cahuapanas, establishing a town there, and preparing ground for agriculture. Naturally the shortest way will be chosen for immigration, that is, by the river Amazon, and this route should be selected as being the most convenient.

"The variety and favourableness of the climate, the fertility of the soil, and the generosity and good disposition of the Peruvian people, are, moreover, advantages which should attract individuals from all parts of the globe. They will find an affectionately disposed country, as brothers solicitous for their welfare; and they, moreover, acquire the ownership of the soil without any further stipulation than that of each person cultivating his own portion of it. The distribution of the land is made per head, each father with a family has a right to receive as many portions as there may be members of it. But we must seek them, tell them the advantages we can proportion to them, illustrate our real position, and please them with our kindness and protection. That is the only way we can influence labourers, if we wish to progress, and enter in the glorious path which Providence has destined for us.

"No country has such advantages to offer to immigrants as we have: a soil most fertile,—natural riches heaped upon it; a climate unequalled. Our proverbial kind hospitality, and everything that is desirable in this world,

we place at the disposal of those who wish to come and live with us."

SITUATION OF THE REGIONS OF CAHUAPANAS.

"This beautiful, rich region is bounded on the north by the Marañon, and by the Cahuapanas on the east. Its situation could not have been more favourable; lying on the upper part of one of our largest rivers, it is not subject to inundations :its soil is most fertile, and its natural products of the richest kind. There are pampas and immense valleys which delight the eye, evoking a provocative desire to cultivate them. Its temperature is most agreeable, and it is altogether most healthy, as has been fully testified by the several expeditions, and by the fact that no one contracted any disease or illness—and this in spite of the hard trials, exposures in all weathers, and great privations supported for many months in the nine expeditions that have taken place. It would be impossible to fully describe the invaluable advantages this locality possesses."

CHACHAPOYAS.

Chachapoyas, in particular, has great attractions—a pleasant and benign climate, a perpetual spring, an ever-verdant vegetation, which, combined with the cultured and generous disposition of its inhabitants, make the city a most enjoyable place, in which all live as if they were members of one family. We do not know any other part of the Republic more abounding in food than that of the Amazon Department; nothing is wanting which can satisfy the most delicate taste. Everything grows at home, without sending outside the Department for food. Its products can be augmented indefinitely, to satisfy thousands of inhabitants, and also those of the Marañon. Professor Orton says of the city of Chachapoyas:—"Perched 7,600 feet above the level of the sea, Chachapoyas possesses a delightful and equable climate, ranging from 40° to 70°, with the mean temperature of 62° Fahr. Here for the first time we ate bread made from the native flour. The people, to the number of 5,000, scratch the ground with a wooden plough. There are signs of valuable mines of gold,

cinnabar, lead, limonite, and grey copper ore containing silver is found in the vicinity, while mountains of salt occur at San Carlos, twenty-five miles distant north-west. Chachapoyas is the best-built and cleanest city west of Mañaos. The city is regularly laid out; it contains a barrack for soldiers, a monastery, a cathedral, and a resident bishop, whose see extends from Moyobamba to Cajamarca."

MOYOBAMBA.

The same author says:—"The city of Moyobamba stands in a most luxuriant place, with an altitude of about 2,700 feet, and a mean annual temperature of 77°; the climate is delightful. Nature is so prodigal that everybody can get a living except physicians." There are two mineral springs at 106°, and also two sulphur springs at 30° and 84°. Grapes, sarsaparilla, vanilla, india-rubber, and copal grow spontaneously, but are not gathered. The bombonáje, or screw-pine, the leaves of which are so extensively used at Moyobamba in the manufacture of hats, is a tree seven feet high; it grows extensively at Moyobamba, between the river Ucayali and the Andes, and largely at Rioja and Tarapoto. The distance from Moyobamba to Chachapoyas is forty leagues, for a hundred miles of which in a stretch there is not one inhabitant. The only villages on the route are Rioja and Tambo. The highest point is Pointa Piskohuañua (*i.e.*, the place where birds die), rising 11,000 feet above the sea. It consists of dark brown slate, with lias ammonites. It is the range which divides the waters of the Upper Marañon from the affluents of the Huallaga, which, meeting the more westerly sierra, form the terrible cataracts above the Pongo de Manseriche.

ANIMALS OF THE MONTAÑA.

Horses, cattle, sheep, pigs. Horses are reared at Caxamarca, and mules[1] of excellent quality at Piura. The llama, which is used as a beast of burden in the mountains, the vicuña and alpaca, all of which produce the most beautiful

[1] The mule is a very important animal in Peru, and without it the steep ascents of the Andes would present insuperable obstacles to intercourse between one place and another.

woods. There are several species of deer (venados or luássa), which exist in large herds; their flesh is excellent. Rabbits, the peccary or wild hog, and other animals are found in this district.

BIRDS.

The turkey (carassow or pari on the Napo), pacharaca (or small pheasant), guanána, or beautiful goose, fowls, ducks, pigeons, toucans, parrots, &c., and all sorts of game birds. The condor is the largest bird of the vulture kind in Peru; its haunts are in the lofty elevations of the Andes. It will often attack animals with impunity.

FISH.

There are about eighteen specimens of the finny tribe found in the Marañon. The principal fish is the pira ruca, or cod fish; it is the universal diet on the Amazon. It sometimes attains the length of ten feet, and weight of 100 lb. Fish are caught by the natives either by hook or by means of the barbasco, a narcotic plant, the bulbous roots of which are bruised and thrown into the small streams, which in a short space of time so stupify the fish that they may be taken by the hand floating on the surface.

The vaca marina, manatee, or sea-cow, which resembles the seal, is about seven feet long and six feet round the body in the thickest part. It is found in the Ucayali and Huallaga rivers, and the natives harpoon it. Its flesh is greasy, and has the appearance of pork. It is boiled and stewed and made into sausages. A large one will yield 50 lb. of oil from its fat. The blade-bone forms a spade, and is constantly used as such by the natives, and it is not a bad substitute. It has a semicircular flat tail, and behind the head are two oval fins, beneath which are the breasts, which yield a white milk.

There is a sort of crab (camarones), the flesh of which is very tender. The Peruvians prepare of both fish and camarones exquisite national dishes, called "cebiche" and "picante."

TURTLE.

The river turtle (tabaraga or charupa, as the Indians call it) forms an abundant supply of excellent food. They are found in immense quantities on the Pacific slopes, and in all the rivers which fall into the Marañon, and in that mighty river also; in the dry season every bank and beach is covered with them. They are taken and deposited in ponds, and kept for use at all seasons of the year. The turtle is very prolific, and lays its eggs from the beginning of July to the end of September. When the Ucayali is at its lowest the beaches are said to appear paved with turtle. The eggs remain fifty days before they are hatched, and are a very valuable product to the Indians, for from them they make an oil which supplies them with light at night, and they also mix it with their food; it is also one of the principal articles of commerce all along the Marañon; it is called manteca. The oil is made in the following manner:—A large quantity of eggs are thrown into a canoe and smashed with a kind of four-pronged fork. The skins are then cleared off and thrown away, the canoe is then filled with water to within three or four inches of the gunwale, and left half a day exposed to the heat of the sun, when the oil becomes separate, and floats upon the water; it is then skimmed off with shells, put into jars, and carried to a cauldron, in which it is boiled until it attains a bright, clear, yellow colour; it is then ready for use or exportation.

VEGETABLE PRODUCTS OF THE MONTAÑA.

The vegetable products of the eastern slope of the Andes rival in value, beauty, variety and fragrance those of any other part of the world. As the elevation becomes greater the tropical plants and flowers disappear, giving place to all the vegetable productions of the temperate zone. There are two classes of productions, natural and cultivated. Amongst the natural are the following:—Caucho (from which india-rubber is obtained, at present the most important industry), cocoa, cascarilla,

cinnamon, coffee, campeche, copaiva, mandioca, vegetable ivory, sarsaparilla, indigo, tamarinds, almonds, gums, resins, storax, bees-wax, Tonka beans, bombanáje (the leaves of which are used for making the celebrated Panama hats, &c.). From the *Coca* plant the natives prepare their favourite stimulant called ypadú; with this beverage they perform a prodigious amount of labour, travelling for days without fatigue or food. There are extensive groves of coca in all parts of the country, and one has only to gather what nature has sown. A full description of this plant will be found in another chapter. *Coffee* of a very excellent quality grows at Moyobamba. *Vanilla* improves by cultivation, which can be carried on on a large scale. The same with *Cascarilla;* it is an indigenous plant, and it is the richest in quinine of cultivated plants. *Tobacco* is of excellent quality, and in some parts, as in Jaen, it is superior to that of Havanna. The *Cotton* plant has not its rival in the world. It grows luxuriantly on the Huallaga, particularly at Tarapoto, and on the Ucayali. The natives make a cloth of it called tocuyo and lienzo, of which tunics are made. The spinning wheels are of the rudest construction. *Rice* grows exceedingly well, and nowhere does the sugar-cane grow so luxuriantly. Cochineal is produced at Amatape (near Payta), and orchilla is exported from Payta.

FRUITS.

The orange-trees of Moyobamba have no rival in the world. The trees bloom all the year round. The grape vine bears three crops a year, and pine-apples grow to the weight of 20 lb. and are of a most delicious flavour. The palta or alligator pear is one of the most delicious of fruits, and grows at Moyobamba. Guavas, figs, olives, also abound.

VEGETABLES.

Maize, rice, beans, peas, potatoes, onions, mountain cabbage, quinoa or spinach, yuca, yellow potatoes (an excellent kind, unique in Peru), &c., grow freely in the country.

MATURITY OF CROPS.

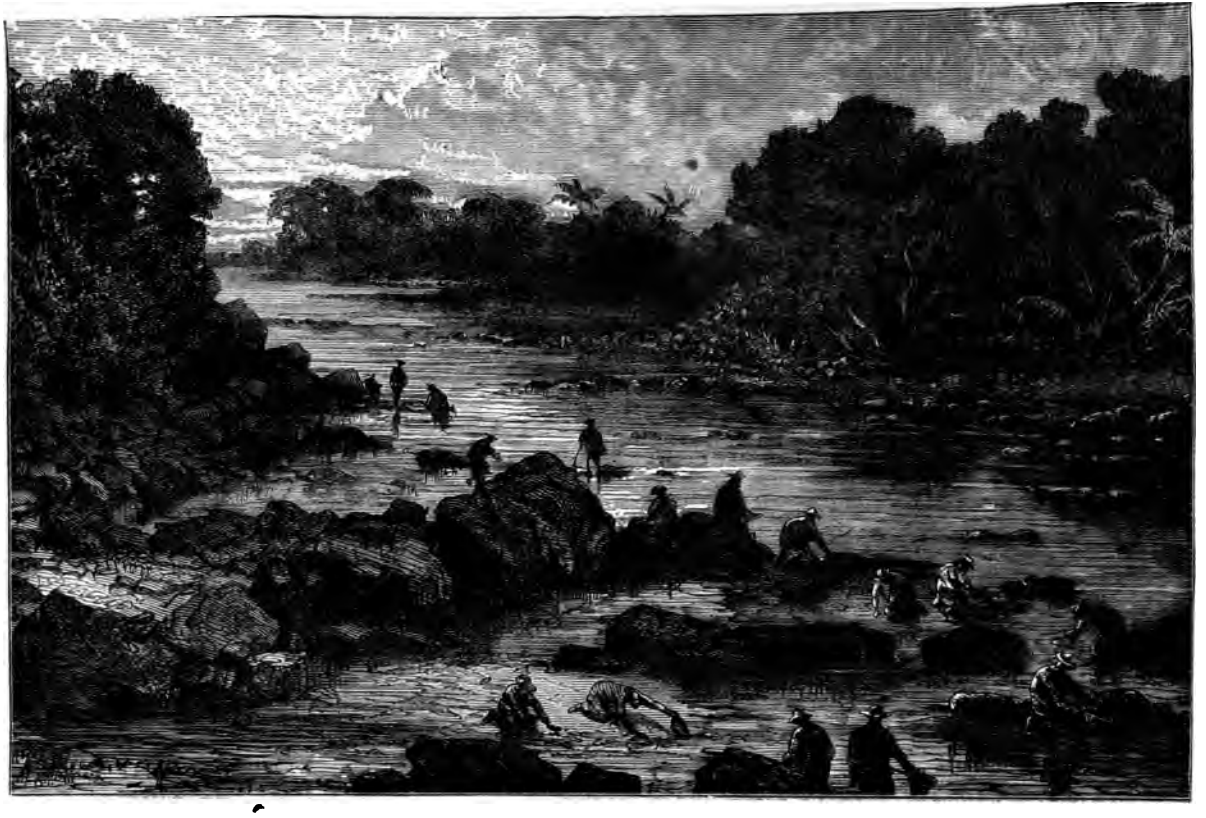
The soil of the Marañon is a stiff loam, and vegetable mould is in many places 20 feet deep. Maize, peas, and yucas are produced in four months, rice in five, sugar in seven, plantains in nine. The sugar-cane only needs to be planted once, as the crop is perpetual; the canes often grow to the height of ten mètres (33 feet).

THE GOLD-WASHINGS ON THE TRIBUTARIES OF THE MARAÑON.

"The rivers wash down gold in nuggets and fine dust. The rivers Santiago and the Patohuachanu, which flow from Equador, are the most important for the richness of their deposits. [1]

"From the former of these rivers one of our ancestors took away several flasks of gold, which formed the offerings the Indians made him while he was among them as Curé. He had been to the gold washings, and saw the abundance of gold, and the facilities for extracting it, as the natives dug trenches in the rivers. When Col. Secada was Prefect in the Loreto Department, there came to Moyobamba six individuals with 14 lb. of gold, which had been taken out of the Santiago in eight days; but during that time only three of them were occupied in extracting the gold, the two acted as sentinels, being very vigilant with their muskets, while the other man undertook the cooking of the food. There lies in the Government offices the proposals for an expedition which Señor Secada suggested should be organised, which he sent to the capital with an ounce of gold as a sample of the notable find. Besides other instances, we have the following:—A party of several individuals, for the most part foreigners, proposed to settle on the Santiago to wash gold; but as the tribe of Huambisis, who were in the

[1] Prescott says:—"Gold was gathered by the Incas from the deposits in the streams. They extracted the ore also in considerable quantities from the valley of Curimayo, north of Cajamarca, as well as from other places.



GOLD WASHING ON THE RIVER URUBAMBA.

Face page 22.

vicinity, thought themselves owners of the washings, they were obliged to work during the day with great precaution, retiring at night in their canoes to a distant place. Their watchfulness and industry were magnificently rewarded, as they were enabled to anticipate a continued remuneration. Uniting again a short time afterwards, nothing having transpired during the interval, and wishing to proceed with greater speed, they remained at the workings, and during the night were surprised and killed by the savages. Latterly there are some individuals who go by night in their canoes to the Santiago washings, stealthily collect as much sand as fills their boats, and carry it away to their homes, by these means obtaining large quantities of gold.

"It is said that the Patohuachanu is richer still, that it rivals California, and that by the eye one can distinguish the sands to be auriferous. It is not known precisely where the place is, but it is south of the Marañon. The Aguarunas know it. It is to be found very near the spot where the Society is making the road to Cahuapanas.

HOW TO DEVELOP THE GOLD WASHINGS.

"The extraction of gold in the workings in the river Santiago should be carried on in a proper manner. An establishment of fifty men should be formed, provided with good guns for sporting purposes, and small mountain guns for protection, with the necessary ammunition.[1] The pay should be twenty-five soles per month, in addition to their keep and passages; at which wages plenty of men can be found. It will be necessary to construct a fort for the habitation of the workers and others. The colony should contain 100 men, at least. Rigorous discipline and strict vigilance at night would be necessary, to keep themselves safe from the attacks of the savages, who would, when they found the undertaking was firmly

[1] Proper precautions against the Indians may only be necessary at this particular place, as Mr. Jean Nötzli, a mining engineer and scientist, assured the writer that he has frequently passed down the rivers in the neighbourhood of the Pongo of Manseriche without ever having been molested by the Indians. See his report, Chap. v.

established, abandon the neighbourhood. The machines employed for extracting the gold should be the same as are used in the United States.[1] Above all, it is most important and indispensable to have a properly-constructed steamer, to transport men and goods, and convey things required.

"On the hills of Angaisa and the Patohuachanu, gold workings are unknown at present, but it is worth while to seek for them. It would be most advantageous to employ capital in erecting mills, using the motive power of the rivers."

PROPOSED CONSTRUCTION OF A RAILWAY TO CAHUAPANAS.

"We will now direct attention to the advantageous uses to which foreign capital may be employed in the Amazon regions. One of the most important is the construction of a railway between Cahuapanas and Yonan, the present termination of the railway from Pacasmayo. The distance is not more than 333 miles, and when this work is completed, important communication between the Atlantic and Pacific will be established by way of the Amazon, the Cahuapanas river, and the railway. The rails should be disembarked at Cahuapanas, and laid on sleepers of good timber, of which there is a great abundance, sufficient to construct all the railroads in South America. The railway would pass through the capital of the Amazon provinces and Cajamarca, and all the towns would be interested to find labourers and provisions. A Steam Navigation Company should be established, and distributed so as to make the navigation of the principal rivers, which would greatly assist colonisation. It is natural that the traffic would be small at first, but the Company should take upon itself the gathering of produce on their own account, such as coca, &c., which is readily found along the banks of the rivers, and barter for gold with the Indians. A few steam-launches would aid in the development of these regions."

[1] In New Zealand steam dredgers are used for obtaining the gold-dust from the rivers, and return a large profit to their owners. These machines are made in England, and would be very suitable for these rivers; with these an immense return would be realised.

DISTANCE FROM ONE EXTREMITY OF THE COUNTRY TO THE OTHER, BY WAY OF CAHUAPANAS (FROM N.E. TO S.W. IN THE NORTHERN PART OF PERU).

From	Loreto	to	Pebas	distance	131 miles.
,,	Pebas	,,	Iquitos	,,	110 ,,
,,	Iquitos	,,	Nauta.....	,,	40 ,,
,,	Nauta to the mouth of the		Huallaga ...	,,	208 ,,
,,	Huallaga	,,	Cahuapanas.	,,	78 ,,
,,	The outside to the town of		Cahuapanas.	,,	66 ,,
,,	Cahuapanas	to	Chisquilla ...	,,	72 ,,
,,	Chisquilla	,,	Chachapoyas	,,	45 ,,
,,	Chachapoyas	,,	Cajamarca...	,,	130 ,,
,,	Cajamarca	,,	Yonan	,,	66 ,,
,,	Yonan	,,	Pacasmayo..	,,	39 ,,
			Total	,,	1,039 ,,

"From the mouth of the Cahuapanas to the commencement of the Pongo of Manseriche, the furthest point of navigation on the Marañon, is 83 English miles. The communication afforded by the road to Cahuapanas, and the establishment of communication between the two towns of Iquitos and Chachapoyas, would be of immense advantage to both; the former would obtain a market for its abundant agricultural produce, whilst the latter would benefit by cheap fresh provisions. Iquitos would be developed rapidly, and become a town of great importance on the Amazon. We learn that, in August last, an expedition started from Iquitos *viâ* Cahuapanas, coming in the direction of our last two expeditions, to seek the track which the Society made; and on the 9th of September an expedition started from Chachapoyas to meet the former."

CHAPTER III.

Products of the Montaña.

THE FRUITS OF THE MONTAÑA.

PROFESSOR ORTON[1] says:—"The valley of the Amazon, so remarkable for the abundance and variety of its woods, is equally rich in other products of the vegetable kingdom. The field is so vast that it can hardly be said to have been explored; but enough has been seen to justify the remark that, if the valley is not the 'Ophir of Solomon,' as some suppose, it is certainly worthy of the name. The industrial, medicinal, and food plants already known and used are beyond enumeration; but, when science and commerce shall have threaded every part of the forest, an immense harvest will be reaped."

Sapoty (*Achras sapota*) or *sapotilla*—a very sweet fruit of the size of an egg, with a yellowish-brown exterior—is most abundant in the eastern valleys of Peru.

Caju (*Anacardium occidentale*) is the fruit of a terebinth abounding in dry, sandy soils, from Santarem to Moyobamba. It has the shape and size of an ordinary pear, with a kidney-shaped nut at the lower end. An excellent wine, considered anti-syphilitic, is made from the fruit, and the nuts are roasted and eaten.

Abacate (*Persea gratissima*), or alligator pear, called "palta" on the Andes. This delicious fruit is the product of a tall laurel-tree with dome-shaped top, grown on all the Amazons, but particularly on the Marañon. The unctuous pulp already recommends itself to a refined taste by its wonderful delicate flavour.

Guava, or *goiaba*, resembles a small pomegranate, and is used for making an excellent though astringent jelly.

[1] Much of the description of the flora in the present chapter is derived from that given by this eminent traveller.

The tree, a scrubby *Psidium*, grows sparingly throughout the valley, and is seen at Moyobamba.

Oranges, or *maranjas*, abound the whole length of the river; those of Moyobamba probably have no equal. The trees blossom all the year round, but especially in January.

Pupunha (*Guilielma speciosa*), or peach palm, on the Peruvian slope called "pisho-guayo," or bird-fruit. This celebrated fruit has the colour and size of a peach. Bates compares it to a mixture of chestnuts and cheese, and Spruce to something between potato and chestnut, but superior to either. It is very nutritious, and forms the principal article of food of the natives, when in season. It is not indigenous, and does not appear wild, but has been cultivated by the Indians, like the cocoa-nut, mandioca, and banana, from time immemorial.

Pitajaya.—The delicious fruit of a tall cactus, found chiefly at Cajamarca.

Palmeto—the terminal bud of many palms—is largely used, particularly on the Marañon, as a salad.

Bread-fruit (*Artocarpus incisa*) has been introduced, and is cultivated sparingly from Pará to the Andes.

Rice is cultivated at Moyobamba.

Coffee has been introduced on the Amazons, and a very excellent quality has been raised on the Rio Negro.

Cacao is a native, and thrives with little culture. Except rubber, it is the chief article of export. Bates saw trees yielding an arroba (25 lb.) each a year. The fruit, in the hands of the natives, is turned to good account, yielding, besides chocolate, a vinegar, a soap, a wine, and a dulce.

Mandioca, or *cassava*, the bread-root of the Amazons, yields farina and tapioca, and a liquor called "tucupi," or "aguardiente de beyu." There are four species:—(1.) The mandioca proper (*Manitot utilissima*), of which there are many varieties, among them maicurú—the lowest being only four feet high, but producing the largest and best fruits—itoqui, tambaqui, auirana, and mucura. (2.) Aypi (*M. aipi*) or sweet mandioca, called "yuca dulce" on the Marañon, having oblong, juicy roots, becoming sweet after they are gathered. The chicha made from it is called "mossato." (3.) Macachero, or macasheiro (yuca of

Peru?), whose roots are used as potatoes roasted or boiled. 4. Manicueira, different from aypi, having a long root. Mandioca will produce in six months after planting, without cultivation. The root is deprived of its poisonous juice in a curious strainer. A long tube of woven fibre, containing the macerated root, is hung up, with a stone at the lower end, by which means the diameter is diminished and the juice squeezed out. In the mandioca, or cassava plant, the wants of man and beast are supplied. Life and death are blended in the plant: every part of it is useful. The cattle eat the leaves and stalks, while the roots are ground into pulp, which, when pressed and baked, forms farina—the bread of all classes. The juice is deadly poison.

Sugar-cane, or sorghum, has a luxuriant growth everywhere on the Amazon, but the cane seems better fitted to make rum than sugar. At San Regis and on the Marañon 18,000 gallons of cashaça are manufactured yearly. Sugar is imported.

Canela (American cinnamon) is obtained from the forests round the head-waters of the Pastassa and Napo, and at Cashaboya, on the Ucayali. It is said to contain more essential oil than that of Ceylon, and it is used as a condiment in the Quito valley.

Vanila, or *vanilla*, is not cultivated, as far as we know, except by an American at Napo; but a small quantity, collected wild, goes down to Para. It is quite abundant on the Sacramento plain of the Ucayali. It is inferior to the Mexican, but would be improved by culture.

TREES OF THE MONTAÑA.

Nowhere in the world is there found such a variety of useful and ornamental woods as in the virgin forests of the Marañon;[1] amongst which are palms, cedars, mahogany, rosewood, satinwood, and many other varieties of valuable cabinet woods. On the high lands, fuchsias, rhododendrons,

[1] Prescott says:—"Here it is that Pizarro's men beheld stupendous trees; some were so large that sixteen men could hardly encompass them with extended arms. Thus, allowing six feet for the spread of each man's arms, they would be about ninety-six feet in circumference, or thirty-two feet in diameter."

calceolarias, and like plants flourish as in the temperate zone. The *Caucho*, or india-rubber tree, is one of the most valuable trees known for commerce. There are two species of the caucho-tree, which are worked under different systems. They are the *seringa*, or *borracha*, which comes from the *Hevea guianensis*, and the *caucho*, called in the Indian dialect *cahucho*. The trunk of this tree is less in height than that of jebi, which does not exceed fourteen mètres (forty-six feet) in the Peruvian forests. Its oval leaves, hairy on the reverse side, fall in the month of July, and are recovered again in the month of August, the period in which its sap is most abundant. The sap is obtained in the following manner[1]:—An incision is made at the foot of the tree in the form of a V. The white sap flows in globules from the cutting, and is received in india-rubber bags. When the lower part of the trunk is drawn off, the tree is cut, and new incisions made the whole of its length. The milk, or sap, falls into a hole opened in the ground. To accelerate the coagulation they add to it the juice, diluted with water, of a plant known in Peru under the name of *leche-camole*. An india-rubber plant will yield one arroba (25 lb.). The india-rubber gatherers say that it is impossible to extract the caucho without losing the life of the tree. If not felled it is attacked immediately in the part cut by insects, and soon dies. In working the *Hevea guianensis*, which grows to the height of fifteen to twenty mètres (forty-nine to sixty-six feet), the tree is not killed. It grows in families or groups, and often 100 trees can be found growing at short distances apart in what is called a *seringal*. The seringuero, or india-rubber gatherer, establishes his residence in the neighbourhood, and makes pathways between the trees. He goes every morning to puncture the trees, that is to say, to make at the height of the hand small incisions, and fixes beneath them a globe or vessel to receive the milky juice. The coagulation of the india-rubber is obtained by exposing the liquid to the smoke produced from the burning of the fruit of a palm. The tapping of a seringal is renewed daily for four or five months, the supply is increased up to the end of the third

[1] Translated from the report of M. Olivier Ordinaire to the Geographical Society of Paris.—From *El Comercio*, Lima, April 22, 1887.

month. The trees are then allowed one month's rest, and the working of the groups can last for twenty years. At the most productive period 100 trees can give one arroba (25 lb.) of india-rubber per day.

Acapu, the "Wacapou" or "Black-heart" of foreigners. It is the *Andira aubletic*, one of the *Leguminosæ*. This is the most valuable ship timber in Amazonia, resisting the teredo. Inland it is largely used as uprights in construction. There are two kinds—that of the terra firma (the best) and that of the lowlands. The wood is heavy, hard, and of a light brown colour, sometimes mottled brown and white. It has a lofty naked trunk, yielding clear timber 60 feet long. Acapu is the pride of the Brazilians, being invaluable in the naval art, and admirably fitted for piles and railroad ties, as it endures moisture and is tough. The leaves are alternate. It grows the whole length of the river Amazon and also on the Huallaga.

Itaüba or *Icaüba*, the "Stone-wood" of the Amazon, belonging to the laurels, is one of the most valuable and common woods in the valley. It is hard, heavy, and firm, and is largely used for building schooners and for houses. As ship-timber it is as durable as teak. It often occurs four feet in diameter and from 30 to 60 feet high. There are two kinds, yellow and black. The former, *I. amarella*, resembles maple; the other, *I. pretu*, is very hard, dark-coloured, and close-grained. Both grow from the Tapagos to the Huallaga.

Palo de Cruz or "Wood of the Cross," the *Lignum vitæ* of Brazil. It is a comparatively small tree (*Leguminosæ*), not over two feet in diameter, consisting of a white wood enclosing a black and intensely hard heart, and from the fancied cruciform section it sometimes presents it derives its name. It is susceptible of a fine polish, and is chiefly made into canes; it is almost confined to Pebas on the Marañon.

Palo de Sangre or "Blood-wood."—This is a very beautiful wood of a red colour, fine-grained, hard, and receiving a good polish. The tree, which has a white bark, grows only on the Marañon and its tributaries, particularly near the foot of the Andes.

Palo Setin or "Satin-wood."—This precious wood is very close-grained, heavy, and durable, of a deep yellow

colour, and is used for veneering, inlaying, picture frames, &c. It has more lustre than the oriental satin-wood (*Chloroxylon*), and belongs to an entirely different order—the *Ebenaceæ*. Logs can be secured 8 inches square and 10 feet long. It grows in Peru.

Palo-mulatto, called *Capirona* on the Marañon, is allied to the cinchonas (*Eulkylista spruceana*) and grows far up the Andean tributaries to the altitude of 2,000 feet. It is a tall, elegant tree (from 80 to 100 feet high), conspicuous for its polished bark and green trunk. The wood is light and tough, and used for beams in houses; but from the abundance and the readiness with which it burns while green, it supplies most of the fuel consumed by the Amazon steamers.

Jutahy or *Jetaby*, "Copal-wood."—This is also a patriarch of the forest, from 150 to 180 feet high, with a gigantic trunk, sometimes 60 feet in circumference and supported by huge buttresses. Generally, however, the trunk is 40 feet long and 3 to 4 feet in diameter. The bark resembles the English oak. The high yields copal, and the low a poisonous juice. The wood is dark-coloured and intensely hard, tough, and dense. It is used for rollers and cogs in sugar-mills, for beams and planks in heavy engine work, and for treenails in planking vessels. It occurs throughout the valley.

Maçaranduba or "Cow-tree."—This wonderful tree, one of the largest of the forest monarchs, is the *Mimusops elatu*, belonging, therefore, to the same order and genus as the *Moirapiranga*. It stands from 180 to 200 feet high and 20 feet in circumference, crowned with a vast dome of foliage. It has entire alternate leaves, a deeply-scarred, reddish, ragged bark (used for dying cloth), palatable fruit and milk. The milk has the consistency of cream, and may be used for tea, coffee and custards. It is a hard, fine-grained, heavy, reddish wood, very durable in water—more so than itaüba even—and the toughest of all Amazonian woods, yet splitting easily. It is largely used for construction and for furniture, and would be admirable for ship-building. It grows on lowlands along the whole length of the great river, from Para to the Upper Marañon, also on the Rio Negro, and probably other affluents.

Chonta is a general term in Quichua for palm. The one

referred to here is the *Bactris ciliata*, a very hard, dark-coloured, elastic wood of the Marañon, from which the Indians make bows and spears and the points of arrows. Another chonta (a species of *Euterpe*) is used in construction on the Huallaga. The wood of the Pupunha Palm is tough and black, taking a fine polish, and is called "Chontadura" on the Upper Marañon.

Aguano, or mahogany.—This is a gigantic tree even for the tropical forest. It is probably not identical with the (*Swietenia mahogoni*) of Central America, the mahogany of commerce, but it resembles it in colour, and it is a choice wood in the Montaña. It grows on the western tributaries of the Marañon, as the Napo and the Huallaga, where it is used in canoe-building, &c.

Cocobólo.—An excellent timber of Moyobamba, the heart of a very large tree. It is reddish and very strong—often used for making the cogs of wheels. It is very heavy and never floats in the water, and is most useful where strength is required.

Cumatsiba.—A very hard, heavy, reddish wood, with a white bark, from the Ucayali.

Aléso (*Betulco acuminata*) is one of the most abundant and useful trees in the Quitonian Andes, descending the Pastassa to nearly 4,000 feet.

Labuana.—One of the largest trees on the Huallaga, has a grey bark and umbrella-like top. The wood is used for building, and rails of it are taken down the Marañon on steamers.

Chawinto and *Sangre de Drago* are very tough woods, growing round the district of Moyobamba.

Balsa, or *ceibo.*—An exceedingly light wood, the "Raft-wood" of the Upper Marañon. It resembles the cotton-wood. The tree (*Ochroma piscatoria*) is about as large as the maple, and the fruit has a cotton-like covering used for mattresses.

DRUGS, DYES, GUMS, AND TEXTILE PLANTS OF THE MONTAÑA.

Drugs.

The valley of the Amazons is an infinite field for the discovery of useful vegetable products. Many unknown principles are waiting to enter our *Materia Medica*, or to advance the industrial sciences. Many a herb of mysterious nature is known only to the Indians.

A CINCHONA FOREST. *Face page* 32.

Cinchona, or Peruvian bark.—What an immense benefit Peru has conferred on the world in this valuable drug! What an amount of suffering has been relieved by its use! This, the foremost of febrifuges, is collected at the sources of the Upper Marañon, Huallaga, Ucayali, and Beni. The region extends over 29° of latitude, and describes a vast curve commencing with the 19th parallel south, and continuing generally along the east slope, at an altitude of 7,500 feet. The valuable red bark (*C. succirubra*) is peculiar to the Pacific side of Chimborazo, and, therefore, does not belong to the Amazon valley. The crown bark (*C. condaminea*) is found in the provinces of Loja, Jaen, and Cajamarca. Its proper commercial name is "Cascarilla," but that name is now given to cinchona in general. The yellow bark (*C. calisaya*) from Bolivia is the present chief source of quinine. The Indians call it *Quina-Quina*, or "bark of barks."

The cinchona trees have the aspect of the beech, with the flowing branches of the lilac, smooth bark, white wood, susceptible of a high polish; opposite, entire leaves, similar to those of the coffee plant, which belongs to the same order. The reckless manner of gathering the bark will, ere long, remove all traces of cinchona vegetation. At least 3,000,000 lb. are shipped annually to England, and the demand and price are on the increase. Several substitutes are used by the natives, as *Maravilla*, from the Pastassa forest; *Chuquiraga*, from the high Andes of Equador; *Quina* (*Solanum pseudoquina*), and *Cafferana*. A tincture of the last is considered more efficacious than quinine.

Mr. J. B. Minchin, the English traveller to the eastern slopes of the Andes, says:—"The cinchona plantations in Peru and Bolivia are at a height above the sea of from 1,300 to 6,000 feet, and are formed to some extent of young plants from the forests, but chiefly from seed, the small plants being transplanted when from three to four inches high to the bottom of holes some six feet apart and six inches square by a foot deep, the mouth of the hole being partially covered with a piece of bark. The young plant is thus protected till it reaches the surface-level, when the bark is thrown off, and it is able to bear the force of the

sun. A year and a half from the time of the seed being sown the plant attains a height of from six to seven feet, and, at the age of six years, the trees are cut, each one yielding some five pounds of dry bark. The cost of forming a plantation of upwards of 50,000 plants a year old may be calculated at the rate of 2½d. per plant. The bark grown on the steepest slopes appears to be the finest, and the immediate proximity of the high cordillera is evidently advantageous, probably owing to the greater amount of moisture in the air, and the more clouded atmosphere and frequent showers, as, at equal elevations further east, the quality is much inferior."

Sarsaparilla is found on all the tributaries of the Marañon. It is the root of a prickly climbing plant, found chiefly on dry, rocky ground.

Ipecacuanha, the great emetic, is the creeping root of the herb *Cephaelis*, growing in the humid, shady forests of the Amazons. It is usually gathered while in flower, *i.e.*, during the rainy season. *Ionidium poaya* is sometimes sold for the genuine ipecacuanha.

Gomphrena ("paratodo" of the natives), growing on the Madeira, is used as a panacea for intermittent fevers, colic, diarrhœa, snake-bites, &c.

Guaraná (*Paullinia cupania*), *Poaya branca* (*Ionidium otuba*), *Sphæralcea cisplatina*, *Manettia cordifolia*, *Pavonia diuretica*, and the seeds of the *Patagua* (*Hura aculota*), are popular remedies for bowel complaints. The guaraná, the most important, is cultivated on the Negro and Tapajos, but especially on the river Manhes. It is a natural twiner, but is kept down by cultivation to the size of a compact currant-bush. The seeds are roasted, ground, and made up into sticks. The essential principle is almost identical with theine and caffeine. It is a preventative rather than a cure, but European physicians pronounce it efficacious not only in diarrhœa but also in sick-headache, neuralgia, paralysis, and lumbago. In France it has cured attacks of cholera when the evacuations were at the rate of thirty per hour. It also prevents exhaustion, hunger, and sleep, being slightly exhilarative. The natives, particularly up the southern tributaries, are passionately fond of guaraná, and drink it as a beverage. On the Orinoco it is used as a

preventative against bilious fevers. In Bolivia it brings six dollars a pound, on the Amazons sixty cents.

Matioco, the leaves of *Arlanthe elongata*, growing on the Peruvian slope, is a valuable styptic for hæmorrhages. A species of leguminous *Myrospermum* ("Quino-quino") growing in the high region of the Huallaga yields the Balsam of Peru.

Coca ("Ipadu" of the Brazilians), the powdered leaves of an *Erythroxylon* growing on the eastern slopes of the Peruvian Andes, is, to the natives of that region, what opium is to the Turks and betel to the Malays. It is not only a powerful stimulant, but also an alimental and a tonic. The leaves resemble tea-leaves, only they are entire, and the plant is a slender shrub, occurring both wild and cultivated. With it and a little parched corn the Indians will stand a surprising amount of fatigue,—in fact, with coca alone they will go days without food or sleep. The best coca is grown in the Yungas of Bolivia. (*See* a fuller description of coca and cocaine, page 110.)

Tobacco of fine quality is cultivated in many parts of the Amazons. The best quality for pipes is that of Borba and Trinidad on the Madeira. The finest for cigarettes is produced at Jeveros, near the mouth of the Huallaga, and at Baguá, Tamboli, Duña, and Cunchára, in the valley of Utcubamba. Three species of the tobacco-plant are recognised by Brazilian botanists, *Nicotiana tabacum*, *N. rustica*, and *N. persica*.

Aya huasca, or "Dead man's vine" (*Banisteria coapi*), a woody twiner, cultivated on the upper parts of the Pastassa, Napo, and Negro, contains in its stem one of the most remarkable narcotics in America. The Napos and Uaüpes drink an infusion at the feasts to get into a trance.

The celebrated poison *Curari*, the most powerful sedative in nature, is a compound prepared only by the natives living beyond the cataracts of the northern tributaries, especially the Negro and Japurá, and by the Tecunas. Its principal ingredient is derived from the *Strychnos toxifera*. The extract is prepared by boiling the bark, and then coagulating with the milk of another plant and tobacco-juice. The slightest portion of this poison diffused in the

blood produces excessive torpor, but it is said that the mind and involuntary muscles continue active. Death ensues from palsy of the lungs. Salt is the only known antidote, and its effects on salt-eating men are not so manifest as on wild animals. It is sold chiefly at Pebas, at one dollar fifty cents a cup of half a gill. Tipped with curari, the needle-like arrow used in the blow-tubes will kill an ox in twenty minutes and a monkey in ten.

DYES OF THE MONTAÑA.

Achiote, anotto, or *urucú,* prepared from the seeds of the *Bixa orellana,* growing abundantly on the high Marañon, is used extensively by the Indians in dyeing a reddish-brown or orange-yellow.

Indigo (*pseudo-anil*) grows wild in many places, as at Santarem, Foente-Boa, and in the provinces of Loreto, Urubamba, and Carabaya.

The fruit of the *Jagua* or *Vitu* (*Genipa*) gives a dark-blue, as on the Ucayali and Huallaga. The Moyobambians dye cotton-cloth a permanent blue by simply boiling it only with the digitate leaves of the *Yangua tinctoria*

Lasiandra argentia, on the Amazons, and *parinari, rijari,* and *huito* from the Marañon, are used for dyeing black.

Orchella, valuable for a yellow dye, is grown along the coast.

GUMS AND OILS.

Copal exudes from the bark of the *Hymenæa* (jutahi, of which there are several species), a monarch of the forest often 100 feet high. On the Marañon it is used for illumination.

The *Cetico* (a *Cecropia,* a tree 50 feet high, with white bark and digitate foliage, very common on the Marañon) is also a "wax tree," but the wax is of animal origin, stored away in the hollow trunk. The wax is of two kinds, white and reddish, the former is said to be made by bees and the other by ants.

India-rubber—called on the river *borracha* (from the form in which it is exported), *seringa* (because it was formerly made by the natives into syringes for injections, a popular treatment of disease), *gomma-elastica*, *jebé*, and *caucho*—is the product of several Amazonian trees, but especially of *Syphonia cahucha*, known by the collectors as *Seringuerià*, or *Chilinga*. This tree, having the bark and foliage of the European ash, and a trunk with the maximum diameter of four feet, and branchless for a hundred feet, grows wild on the lowlands (ygapos) of all the tributaries, but it is tapped mainly in the regions of the Madeira, Xingú, Puruó, Jurúa, and Tapajos. The rubber is collected in the dry season (between July and January), one man collecting on an average 8 lb. a day, worth on the Amazons (when fine) 14 dollars an arroba.[1] The sap has at first the consistency of cream, but soon thickens and is further hardened by being exposed to the smoke of burning palm-nuts, usually the urucuri. Coagulation is necessary also to prevent the separation of resinous parts. (See mode of collection, page 28.)

Castor-oil plant (*Recina*) abounds along the eastern slope of the Andes, one species attaining, at Tarapota, the height of 25 feet, but very little oil is extracted.

Sassafras, so-called, is the transparent oil of a tree on the Upper Negro, and is used in mixing colours.

TEXTILE PLANTS.

Pita (so-called in Equador, in Peru "caybua") is made from the macerated fibrous leaves of a species of *Agave*. It is manufactured most largely at Archidona, on the Napo.

The *Chambira* (an *Astrocaryum*) is used by the Zaporus on the Napo for string for the manufacture of hammocks.

The natives make a bark cloth from the tururi (*Curatari legalis*) called "cascara" up the Madeira, and from the lanchama on the Marañon (Napo and Huallaga).

A wax palm (*Carnabua*) furnishes a fibre for making mats; and ropes and other fabrics are made of the fine, glossy fibre called "caraua" and "palhá," from a species of *Bromelia*.

[1] One arroba equals 25lb. Spanish.

The *Screw pine* (*Carludovica bombonáje*), the unexpanded leaves of which are so extensively used at Moyobamba as well as at Guayaquil for the manufacture of Panama hats, is grown between the Huallaga and the Andes, particularly about Moyobamba, Rioja, and Tarapoto. The tree is seven feet high, but the full-grown leaves are ten or more. The longest straw obtainable is 27½ inches. It takes about sixteen bundles (cogollos) for an ordinary hat, and twenty-four for the finest. The straws of the latter are not more than one-fortieth of an inch wide. About 100,000 hats were annually sent down to Pará ten years ago. They then commanded 40 dollars a dozen; now they can be bought for 15 dollars.

Cotton is grown mainly on the Huallaga (particularly at Tarapoto) and Ucayali. Trees at Balso Puerto grow twelve feet high. The native cloth is called "tocuyo" and "lienza," and that which is made into *cushmas*, or long tunics, is stronger than the stoutest unbleached cotton of England or the United States. The spininng-wheels and looms are of the rudest construction.

Huimba, the produce of a tree (*Bombax*) growing on the Peruvian slope, resembles cotton, but is much lighter and very silky. The Indians use it to wrap around the slender arrows blown through the cerbanta (blow-tube).

Samaüna-silk, from the giant *Eriodendron*, is used for the same purpose.

PALMS.

Mauritia.—This group may be distinguished from all others, not only by their leaves but also by their scaly fruits and pinnately branched spadices. There are at least a dozen species on the river. The *M. flexuosa*, the miriti of Brazilians, and achuál or aguáshi of Peruvians, is the most universally distributed palm in the valley, abounding from the shores of the Atlantic to the altitude of 3,000 feet on the Andes of Peru, Equador, and New Granada. It is a social palm, forming groves along the low shores at the mouths of the tributaries and about swampy lakes. It is always a conspicuous object, the smooth stem often rising 100 feet and bearing enormous, spreading, fan-like leaves, and clusters of egg-shaped, scaly, reddish fruit resembling

pine-cones. The epidermis of the leaves furnishes a useful fibre. The orange pulp of the fruit is eaten by the Indians, or made into wine called yucuta, and the farinaceous pith yields a kind of sago. The Indians call it "the tree of life."

Carludovica palmata (R. et P.), or bombonáje, from which straw hats are made, has no stem; the leaves, on long slender petioles, spring from the ground. The leaves are about 10 feet long, fan-shaped and four-parted, each segment on its own rib; there are eighty layers in a young leaf. It is this young unexpanded leaf, which is split into 160 or more strips, that is used in the manufacture of Panama hats. It is confined to the Andes.

Phytelephas.—The ivory palms, whose seeds yield the vegetable ivory of commerce, are found only at the roots of the Andes, generally in clusters near streams under the shade of lofty trees, as at Tarapoto. Their extreme altitude is 3,000 feet. There are two species; *P. macrocarpa* (R. et P.), or polo-ponto, has a very short trunk or none at all, and large pinnate leaves, with about 100 pairs of pinnæ, which begin at the very base of the leaf. The fruit is about the size of a man's head, and is well packed with from twelve to twenty leaves.

ORCHIDS.

Some orchids are in bloom all the year round. The finest species is the *Odontoglossum*, having large chocolate-coloured petals variegated with yellow. "Such in number and variety," wrote Humboldt, "that the entire life of a painter would be too short to delineate all the magnificent *Orchidæ* which adorn the recesses of the deep valleys of the Peruvian Andes."

CHAPTER IV.

The Rivers, Indian Tribes, and Vocabularies.

NAVIGATION OF THE AFFLUENTS OF THE MARAÑON.

Report of SEÑOR A. LARREA, *Commander of the Peruvian Naval Station; dated Iquitos, March 31st, 1885. Translated from the Peruano.*

THE *Huallaga*[1] is navigable as far as the cataract of Aranboso, which is 191 miles from its mouth. At the present time canoes can reach up to the centre of the Huanuco department, and steamers of 800 tons trade as far as Yurrimaguas. For the first hundred miles it has an average depth of three fathoms, and a current of three miles an hour.

The *Paranapura*, affluent of the former, is navigable as far as Baradero, the point where it unites with the Cachiyaco. The distance is almost forty miles. The *Aipena*, like the former affluent of the Huallaga, is navigable as far as Naranja-Tambo, and can be navigated 120 miles. By this river the old town of Jeveros is reached.

The *Marañon* has 179 miles navigable, from its confluence with the Huallaga up to the Manserich cataracts. The steamers *Morona* and *Pastaza*, which belonged to Peru, could always reach as far as Borja, a port 1½ miles distant from the said cataract.

The river *Santiago*, called by the Indians *Canusayacu*, the mouth of which is on the Manserich cataract, although it has not yet been navigated on account of that dangerous pass, is not as yet proved to be impassable. Canoes ascend it, and not a little gold, washed from its banks, is brought down by traders; all the alluvial slopes along this river to the source of the Napo are auriferous. The small steamer *Napo* endeavoured to pass it, but was

[1] This river rises in the silver-bearing mountains around Cerro de Pasco, and after a course of 500 miles falls into the Amazon.

prevented by the severe current and had to return, but this steamer is very far from being a model boat for expeditions of that magnitude.

The river *Potro*, an affluent on the left bank of the Marañon, has been navigated for forty miles by the launch *Mayro*, when it was the property of the State. The river is important, as being the proper avenue for the commerce of Chachapoyas. It is 1,000 mètres wide at its mouth.

The *Cahuapanas*, affluent of the Marañon, is navigable for 120 miles, at which point is situated the small village of Barranguela, and the canoes navigate it with facility from beyond the village of Cahuapanas. The launch *San Antonio*, belonging to Linares & Co., carries on a trade along this river, where there are inhabited places.

The *Morona* has its origin in Equador, and joins the Marañon a little below the Pongo of Manseriche. Its banks are much populated by savages, but there does not exist any reason to fear them, like those on the Santiago. The Morona has been navigated by the Government for the express purpose of ascertaining this fact.

The *Mangosisa*, a tributary on the left bank of the Morona, has been navigated as far as the centre of the district held by the tribes of Indians (Patucas and Ayulis). The Morona and its affluents can be navigated even further by steamer. The distance from the mouth to the confluence of the Mangosisa and Cusulima is 310 miles, and steamers ascend the latter as far as Macas, the golden Seville of old Spanish days.

The river *Pastaza* has likewise been visited by Government ships, and at the present time is traversed by the house of Linares & Co., who have several establishments there. They employ the steamer *San Antonio*, which reaches near to Andoas, and the smaller vessels pass up to Sarayacu, in the hills of Bombonasa, near Canelos. A considerable amount of gold is washed by the natives from the black sand of Bombonasa.

The river *Tigre*, affluent on the left bank of the Marañon, has been navigated by the *Mayro* once, and the *Loreto*, belonging to private owners, has made several journeys to the villages to reconnoitre. The first took 150 days, and the second has taken eight days in voyage.

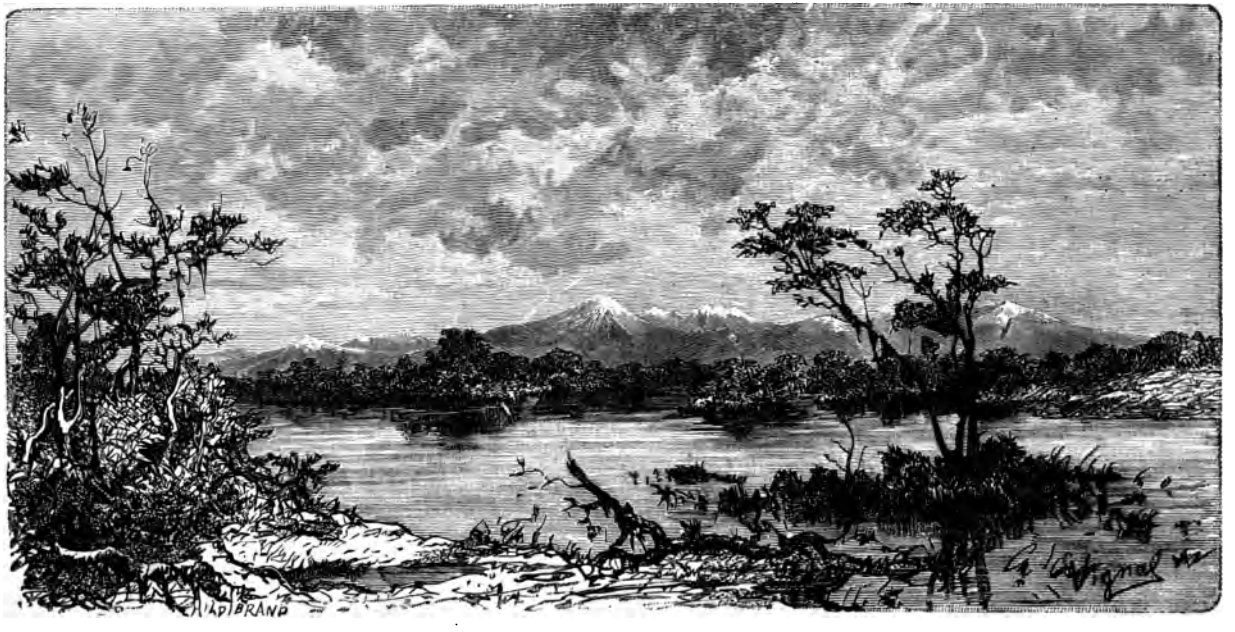
A course of 150 miles can be reckoned upon on this river. The owners of the *Loreto* know it. They have had an establishment at the mouth of the said river for twenty years. They can navigate for two months above in canoes. The produce is rubber, sarsaparilla, copal, oil, coffee, wax, pitch, &c.

The *Nanay*, a river near Iquitos, can be navigated for two months in canoes, according to the accounts of the natives living on its banks. For 160 miles there is a depth of from three to four fathoms.

The *Napo* is navigated as far as it is found to be of utility to the owners of the launches. The steamer *Putumayo* has gone up this river oftener than any other vessel, reaching as far as Coca, at which point were found two branches of water, and at that point the captain learned that he could navigate as far again. From the Amazon to La Coca, the distance is about 200 miles. The Napo has two affluents navigable, but no scientific exploration of them has been made. The river is the natural highway eastwards to Equador. By decree of the Equadorian government, there is no duty on goods entering by the Napo for twenty years. Flat-bottomed steamers can reach Santa Rosa without any difficulty. It is a pity that commercial relations with the various tribes are not yet established, as a great profit could be made by trading on that important river. The town of Napo stands 1,450 feet above the level of the sea, and there are no mosquitoes there. There is a considerable amount of gold taken out of the Napo. It comes from the Llangunali mountains. Its length is about 800 miles. Above Santa Rosa the current runs six miles an hour, but at Santa Rosa only four miles. The Indians spend their time in feasting and hunting; agriculture is unknown; they have no word for plough; they have a great weakness for beads.

The *Curaray* (meaning gold), one of the principal tributaries of the Napo, rises in the Llangunali mountains. Should the Curaray be found navigable, it would open up one of the richest districts of the continent, abounding in vegetable produce, while the purest gold washed on the whole Amazon is obtained there.

The river *Yapurá*, or *Caquetá*, has been surveyed up to the Apaporis by the Hydrographical Commission, but it



THE NAPO, WITH A VIEW OF THE LLANGUNALI MOUNTAINS IN THE DISTANCE. *Face page* 43.

did not proceed beyond the junction of that river. It is navigable ten days by steamer, or forty by six-oared canoe. The channel is only six or eight mètres (20 to 26 feet) deep, and there is no settlement.

The river *Yavari* was navigated by the steam launches belonging to the Peruvian Brazilian Boundary Commission, but it did not proceed beyond the meeting of the Yavari, Shino, and Jaquirana. At the present time this river is much frequented up to a place named Colombia, fifty miles below the junction indicated. This river serves the boundary line between Peru and Brazil. It is navigable for 900 miles.

The *Ucayali* is the principal tributary of the river Amazon. There is regular steam navigation along its course for deep-draught steamers, as far as the junction of the Pachitea, which is 575 miles distant from its mouth. One of its tributaries, the Cachujaco (which signifies salt), has salt water, derived from the mines at its source. In the Cuxhabaty there are rich deposits of gold. The Peruvian Government has constructed some roads through the dense forests connecting this river with the Huallaga. Trade is progressing rapidly. Churches, chapels, and schools have been built in the villages at the expense of the Government, and the natives are daily becoming civilised and industrious. The largest quantity of india-rubber is exported from this river.

The *Purus* has been explored for 1,866 miles. It can be navigated by large steamers as far as 7° 4′ 2″ S. lat., from thence by steamers drawing 4 feet to the junction of the Aquiry. Since 1878 this beautiful and rich region has rapidly developed, a service of four Brazilian steamers has been established monthly, which carry no less than two million dollars' worth of india-rubber annually.

The *Yuruá* waters the regions between the Purus and Yavari. It is navigable for a distance of 1,130 miles.

The *Amaru-mayu*, a tributary of the Madeira, was explored, in 1860, by an expedition sent from Cuzco, under Colonel Maldonado, and in 1873 by another, under Colonel Latorre

The *Beni*, also a tributary of the Madeira, was explored by Doctor Edwin R. Heath, in 1880 and 1881, since which time these regions have made great progress in

development, and now large quantities of india-rubber, vanilla, and other valuable products are gathered and shipped to Europe. Unfortunately the Beni is cut off from direct communication with the Amazon by the falls in the Madeira. A full report of the exploration of this river, the Amaru-mayu, and other tributaries, is contained in the June proceedings of the Royal Geographical Society of 1883.

In order to facilitate immigration to the Amazon regions, and afford the necessary facilities to the commerce of the world, the Peruvian Government, by decree dated 17th December, 1868, declared the navigation of the Peruvian rivers open to the flags of all nations.

EXPLORATION OF THE PUTUMAYO BY THE PERUVIAN-BRAZILIAN COMMISSION.

According to the account of the joint Peruvian-Brazilian Commission of 1873, the said Commission entered this river with steamers, and navigated it from the 12th to the 16th of July, 1873, showing that this river is navigable at least as far as that part of it which is situated in 2° 46′ 11″ latitude, S., and 69° 39′ 10″ longitude W. of Greenwich. In 1874 a private company of Columbians, named the Coqueta Company, formed an expedition for the purpose of exploring its natural products of india-rubber, sarsaparilla, and chinchona bark. In November, 1875, three steam-vessels were made ready—a steam launch, a cargo steamer, *Santa Cruz*, and the steamer *Tundama*. The steam launch was in command of a young Englishman named Mr. Alfred Simpson, and acted as vanguard to the expedition, in order to prepare firewood along the banks for the other steamers. In his account to the Royal Geographical Society of the voyage, Mr. Simpson says that the Putumayo is navigable for a steamer for a great distance. He calculated that the distance direct, from its origin near the Pasto volcano down to its junction with the Amazon near San Antonio, is 620 miles, but that, by the numerous turns in the river, it flows 1,200 miles. Adding to them the 1,800 miles from its mouth to the mouth of the Amazon would give a total of 3,000 miles as the distance from

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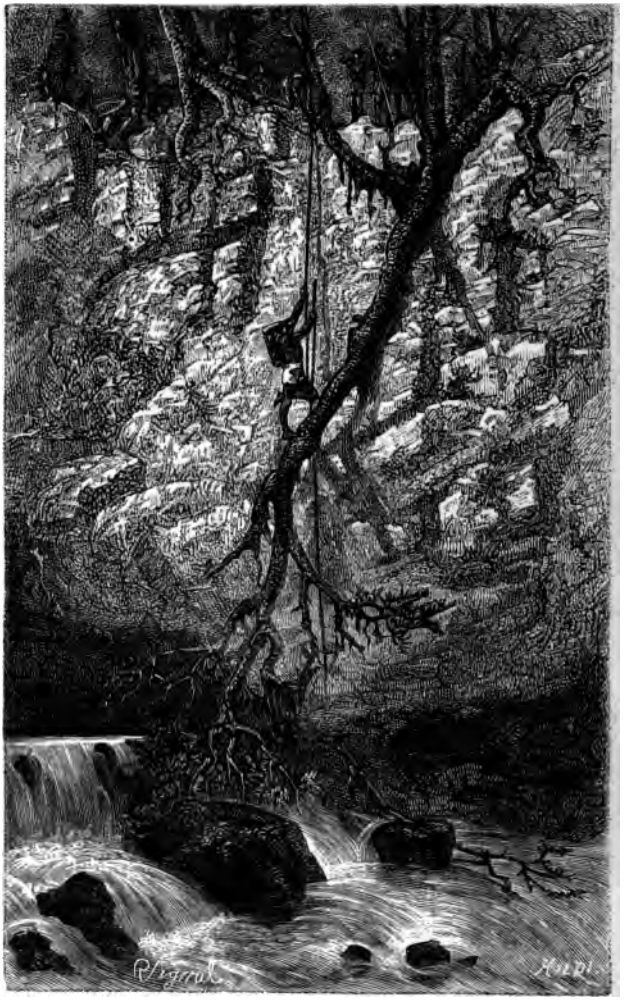

AN IMPROVISED BRIDGE IN A GORGE NEAR NAPO.

Face page 45.

the origin of the Putumayo to the Atlantic. The river Putumayo, or Ica, takes its rise in the Eastern Andes of Equador, between ½° and 1½° north latitude, in the vicinity of the well-known volcano of Pasto. The Putumayo runs a general south-easterly course, almost parallel to the Yapura and Napo, over a bed of shingle and rocks, at the commencement of its course until near the Indian settlement Montépa, about 900 miles from its mouth, where the last stones are seen. It opens out into a great width at places, forming several channels divided by large islands. The principal tributaries on the right bank are the San Miguel, Incuisilla, Oqiuri, Campúyas Guayacurá, Yáhuas, and Utuhué; and on the left Cocaya, Totuilla, Grande, and Garaparaná, the last in the locality of Miranhás. Its mouth is very large, situated about twenty miles below Carapaná. Of these tributaries, the only one known besides the San Miguel, which runs within a day's foot-journey of the Upper Aguarico, are the Yahuas and Utuhué. Traders have passed the former occasionally; it is within one and a half days' journey on foot to Pebas. The latter serves as similar communication with Loreto. By treaty between Peru and Brazil the navigation of the Putumayo is common to both countries.

STEAM LAUNCHES REQUIRED FOR THE MARAÑON.

What is required for this department are two steam launches, from thirty-five to forty tons—one with a screw and the other built after the stern-wheel system, made appropriate for expeditions, and whose speed should be fifteen miles an hour. The hull should be after the model of the exploring ships *Napo* and *Putumayo*, should be constructed of steel plates, and have a draught of water of from three and a half to four feet maximum, with all its fuel of wood and provisions for victualling fifteen men. The hull should be divided into three sections—the first for seamen's quarters and naval stores, the second for machinery and fuel, and the after-part for provisions. A teak deck, with a small house on the poop; a wooden roof from stem to stern, seven feet high, on iron columns, with a gunwale three feet high, to serve to protect the crew from the arrows of

the natives and from gunshots, and should also be provided with engines of high and low pressure, horizontal boilers, and furnaces for green wood four feet long, and twin crews, for improved speed, would also be required.

THE PERUVIAN NAVAL FACTORY AT IQUITOS.

The naval factory which we possess at Iquitos is an important establishment, which renders very great service to the ten small steamers which navigate our rivers, and has my best attention. In December, 1877, it was delivered over to the contractors, and returned to the Government in June, 1883. In respect to the benefit which the factory lends, it is not the less important as serving as a school for young men, where they learn several useful duties.

EXPORTS FROM IQUITOS.

The chief article of export was formerly straw hats, made in the Huallaga, San Martias, and Moyobamba districts; but, unfortunately, it has decreased considerably, and now india-rubber is the most important. Other important exports are sarsaparilla, copaiba, chambores, peje salado (salted fish), &c.

IMPORTS TO IQUITOS.

The chief imports are American flour, hams and lard, axes, nails, twine, knives, gunny bags, cotton goods, beads, &c.

PERUVIAN PORTS ON THE MARAÑON OR UPPER AMAZON.

Peruvian territory begins at Tabatinga, which is about 2,000 miles distant from the mouth of the Amazon. It stands on an eminence of yellow clay, and is defended by twelve guns. Peruvian steamers connect at Tabatinga with the Brazilian line. The width of the river here is one and a half mile and the depth six to twelve fathoms, according to the season. The first Peruvian port after leaving Tabatinga is Loreto, the capital of the province, distant twenty miles. The next place is Pebas, distant 131

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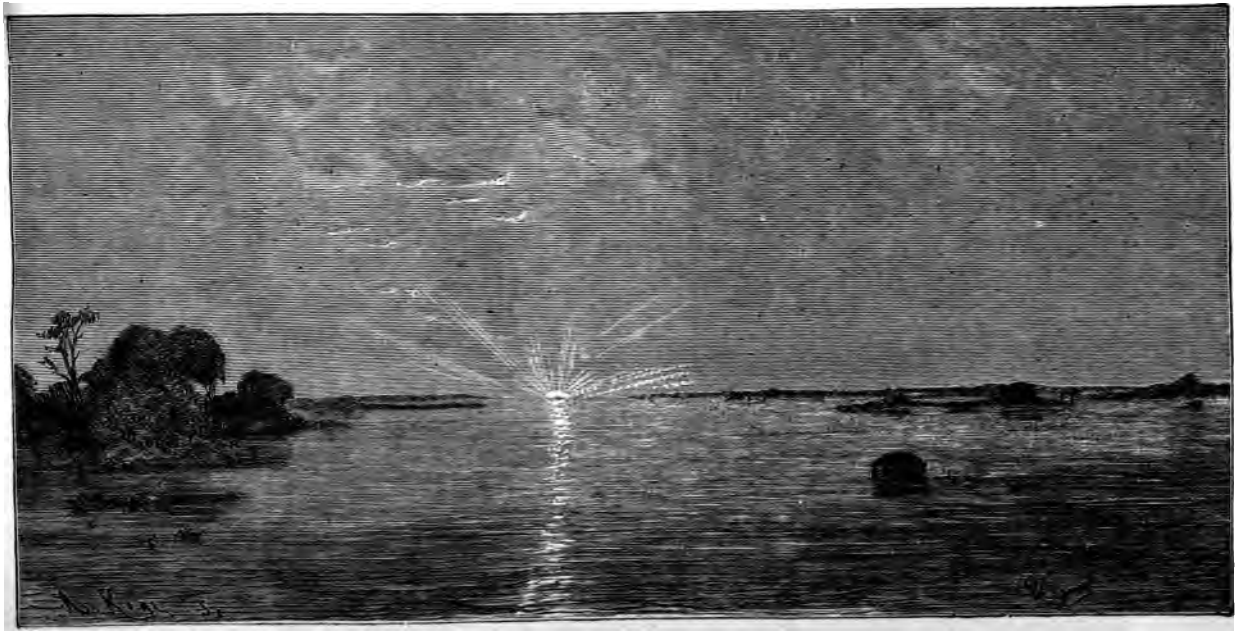


VIEW OF THE AMAZON AT THE MOUTH OF THE NAPO.

Face page 47.

miles, and then Iquitos, distant from Pebas 100 miles. Mr. Hauxwell, the collector of birds, resided thirty years at Pebas. Iquitos is the principal town on the Marañon; it has about 2,000 inhabitants, and is the head-quarters of the Peruvian fluvial navy. It is situated on an elevated plain on the left bank of the river, sixty miles from the mouth of the Napo, and about 2,251 miles from the Atlantic. Here are the Peruvian Government ironworks, carried on by English mechanics, and a saw-mill. The Peruvian Government first sent steamers to the Marañon in 1853. According to the report of the naval commanders at Iquitos, in 1884, thirty-eight steamers (thirty Brazilian and eight Peruvian) arrived at Iquitos, with a tonnage of 7,469, the largest being 680 tons burthen, and thirty-nine steamers left Iquitos. Nauta is the next town; distance from Iquitos forty miles. It lies on the north bank of the Marañon, opposite the entrance of the Ucayali; it contains 1,000 inhabitants, and trades in fish, sarsaparilla, and wax.

YURRIMAGUAS.

The next important port is Yurrimaguas, situate on the Huallaga 123 miles from its mouth, and about thirty-three miles distant from Nauta. This is the highest point of *steam* navigation on that river. Yurrimaguas is the port of Moyobamba, a city of 10,000 souls, a six-days' journey south-west. Professor Orton says:—"Yurrimaguas is a collection of 100 mud huts. It is a busy place when the steamer calls for hats, salt, sarsaparilla, rum, cotton and fish. But Yurrimaguas is the emporium of a region richer by far in natural wealth than the Empire States—the entire eastern slope of Northern Peru." The Peruvian steamer *Morona*, of a tonnage of 500, and engines of 150 horse-power, makes monthly trips between Yurrimaguas and Tabatinga, connecting therewith the Brazilian line. The river Amazon is navigable for 2,600 miles, and steamers as large as 800 tons can reach as far as Borgas and Yurrimaguas, ports standing on the spur of the Andes mountains, and in the centre of the Amazon provinces. The many tributary rivers are all navigable for flat-bottom steamers and steam launches. The whole

country is covered with a boundless forest. The india-rubber tree is abundant, and forms a most valuable article of commerce; other products, such as cocoa, coffee, vanilla, sarsaparilla, indigo, vegetable ivory, dyes, balsams, &c., are waiting there to be gathered by the hand of man.

EXPLORATION OF THE RIVER MORONA, AND THE UPPER MARAÑON.

(*Translated from Raimondi.*)

By command of the Loreto Department an exploration of the upper Marañon took place in 1867, under Señor Vargas, when it was ascertained that the Indians inhabiting its banks were, as a rule, well disposed and easily brought to adopt civilised customs and habits; that the country was rich in gold, and that the abstraction of this metal was attended with risk, as there still remained some hostile Indian tribes; and that navigation, with the exception of a few shallows of no great extent, was practicable. This expedition, which started from Iquitos, explored these rivers for a distance of 494 miles. Señor Vargas measured the distance from Iquitos to the last point he reached in the Upper Marañon, and gives the result as follows:—

Ports.	Distance from each Port.	Distance from Iquitos.
	miles.	miles.
From Iquitos to Omagua	48	48
,, Omagua to Nauta	35	83
,, Nauta to San Regis	34	117
,, San Regis to Parinari	63	180
,, Parinari to Vaca Marina	42	222
,, Vaca Marina to Urarinas	44	266
,, Urarinas to Frontivera	26	292
,, Frontivera to Caserio del Cedro	30	322
,, Caserio del Cedro to San Antonio	82	404
,, San Antonio to Barranca	20	424
,, Barranca to Limon	42	466
,, Limon to Isla de Nacacuyaga..	28	494

LIST OF THE PRINCIPAL LATITUDES AND LONGITUDES, MAGNETIC VARIATIONS, BAROMETER ELEVATIONS AND DISTANCES, ESTABLISHED BY THE PERUVIAN HYDROGRAPHICAL COMMISSION, 1873.

Place.	Latitude, S.	Long. W. of Greenwich.	Variation of Compass.	Elevation.	Distance from Iquitos.
	° ′ ″	° ′ ″	° ′ ″	m.	miles.
Marañon.—Lower mouth of Javari River	4 18 45	69 53 10	5 38 54 E.	81,075	315
					From Javari.
Loreto	3 54 20	70 7 55	5 11 24	87,171	53½
Iquitos	3 44 15	73 7 30	5 56 0 E.	89,914	315
North of the Ucayali	4 28 30	73 21 30	7 2 0 E.	96,924	376¾
					From Iquitos.
Lago Puca-curo	6 4 45	75 1 10	7 22 10	114,908	856
Puerto de Sarayacu	6 35 15	74 58 30	7 52 8 E.	124,967	451
Paca mashi	7 53 15	74 41 45	7 51 38 E.	132,557	607
Yarina-cocha	8 15 0	74 31 30	7 38 30	136,245	672
Mouth of the Pachitea River	8 43 30	74 32 30	8 45 40	154,837	765
Pachitea River.—Cañu-yacu (Hot Water)	9 5 52	74 48 15	8 59 26 E.	109,773	835
Inca Rock; at this place there are numerous hieroglyphics cut in the sandstone cliff	9 9 4	74 55 45	8 6 26	...	837
Confluence of the Pichis and Palcazu	9 54 9	74 58 45	7 34 4	188,365	956
Pichis River.—Pochelle Playas; navigation is clean up to this point	9 57 11	75 2 0	8 35 36 E.	...	971
Tempestad Playa	10 5 6	74 55 45	7 46 0 E.	...	996
Mouth of the River Herrera-yacu	10 20 3	74 54 0	7 59 26	...	1,030
Puerto Tucker; highest point navigable in canoes	10 22 55	74 49 0	9 7 30	213,359	1,041
Herrera-yácu River.—Terminacion Playa, highest point of navigation in canoes	10 22 33	74 54 0	7 47 52	...	1,034
Palcazu River.—Puerto del Mayro	9 55 22	75 17 45	7 28 54	242,315	992

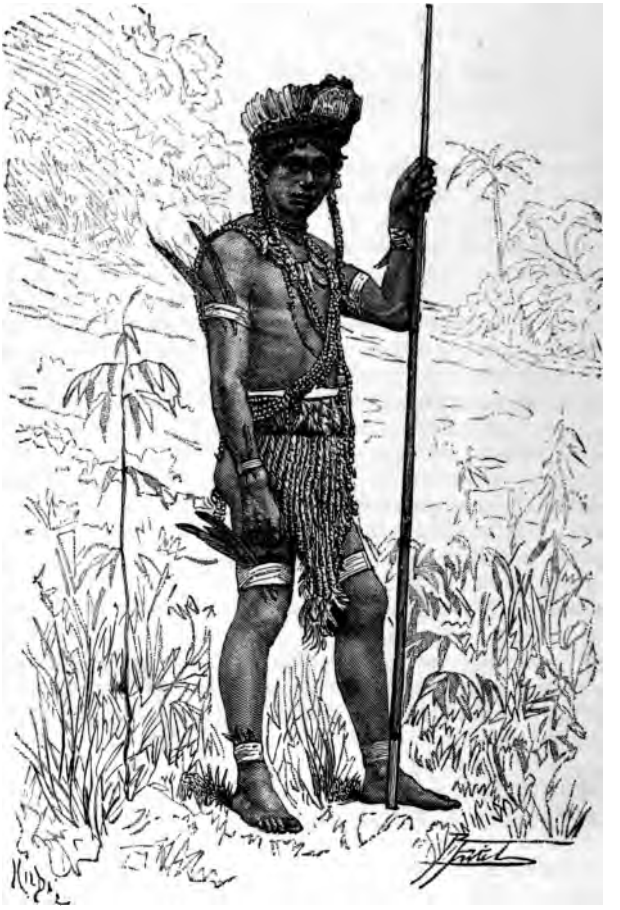
INDIAN TRIBES OF THE MONTAÑA.

Translated from SEÑOR ANTONIO RAIMONDI'S *work*, "*El Perú*," *Lima*, 1879, *by permission of the author.*

The *Marúbas* on the Javari have a dark complexion and a slight beard. On the west side of the river roam the *Majeronas*, a fierce, hostile, light-coloured tribe of bearded cannibals.

The *Jivaros*.—It is well known that the Santiago is much populated with savages (the Jivaros, a large tribe and one of the most warlike in South America), and that the names of many are mentioned who have been victims to their treacherous attacks, who, carried away by the enthusiasm of exploring the ancient famous gold-washings, have trusted to the treacherous friendship of the Jivaros, who in remote times destroyed in a single night numerous flourishing towns, and amongst them Sevilla del Oro, which was situated on the banks of the Santiago, killing all its male population. The missions at Moco and Guayaquiza have produced as yet no practical result. This tribe occupy the country generally from the Upper Pastaza to the Santiago, down to the Pongo of Manseriche. According to P. Castrucci, the Jivaros number about 1,600; they live like the Yaporos. They rear pigs and fowls in abundance, hunt monkeys, and eat all kinds of animals; cultivate plantains, yuca, caniotes, pupus de nointe, pine-apples, and sugar-cane. They have the custom of preserving their dead, drying them by means of a slow fire and much smoke, and so reducing them to mummies.

The *Yaporos* do not exceed a thousand, they are scattered over an immense tract of land, and their villages are very far apart. Their houses are constructed of the boughs of a palm called tarrepoto, and are 25 yards long, by 18 feet wide, and are inhabited by from twenty-five to thirty persons. They sleep in hammocks, and always have by their side a candle, which infallibly burns the whole night. Each man lives with three or four women, who live in the greatest harmony among themselves.



A TAPUY INDIAN OF THE NEIGHBOURHOOD OF PEBAS.

Face page 52.

The *Ayulis*.—According to Raimondi, the Ayulis, who inhabit the river Morona, are generally well-formed, of sound disposition, and robust; are light in colour, have good eyes and beards, which they often cut, and they appear rational. Everything leads to the belief that this branch of the great Jivari nation is crossed with white or Spanish people. Tradition relates that in the days of colonisation (eighty years ago), the town of Logroño and other places were destroyed by the said Jivaros, in consequence of the great greed of the Spaniards for gold, which these Indians contributed to the Crown of Spain, and that they beheaded all the men, the barbarians taking away with them all the women, including the nuns of the convent of Logroño. The Ayulis, the same as the Patucas on the river Alangirsa (a branch on the left of the Morona), are kind, laborious, and clever; they make good canoes, and cultivate in abundance yucas, plantains, maize, onions, and beans. They likewise cultivate cotton, with which the women make very gay woven clothes, which they wear. They rear fowls, chanchos, and dogs.

The *Conibos* occupy the extremity north of the territory of the Huillcamayo and part of the prolongation called Ucayali; the extent of their territory is eighty-two leagues, = 246 miles, beginning from the river Simpa and extending to the Capisinia. The land is flat and woody, and the atmosphere is humid. The climate is considerably hot, except in times of storms, when the temperature is much lower. The Conibos are small in stature, brown in colour their bodies are fat and almost womanish, their features are proportionate, and they have their noses less flattened than other Indians. The women have ugly faces, and deformity in proportion to the body. They wear the same kind of clothes as the Piros, being different to them only in colour, which is snuff-colour. They speak pausingly, and their guttural sound is not so pleasing as that of the Tampis and Piros. They are circumspect, reserved, and distrustful. They cultivate a great deal of land, and fish for turtle, which is called charapa.

The *Shipibos* are the fourth tribe, which have an extent of district of sixty-four leagues, = 192 miles long, on the river Ucayali, a continuation of the river Huillcamayo, from the

river Caspusina to the Sarayacu. The country is level and has extensive forests. Their products consist of wax, vanilla, aguardiente, rice, and, in the Huallaga district, salt. The climate is that of the Conibos. In the vicinity of Pebas dwell the inoffensive *Yaguas*. Near Nauta dwell the tall, finely-built *Cucumas*, shrewd, hard-working canoemen, notorious for their singular desire to possess property; and the *Zamoes*, a white tribe, who wander across the Marañon, as far as Sarayacu. Mr. Alf. Simpson says:—"All the Indians of the Napo, Pastassa, and Putumayo, who have had contact with or even heard of white men and baptism, show the greatest distaste for the despicable title of Ancas (heathens), and invariably disclaim it for themselves, but I fear their religious zeal goes no further."

The *Quichuan* is always submissive to your face but slow to perform; soured by ill-treatment, he will hardly do anything unless he is compelled. He will do nothing well unless he is treated as a slave. Treat him kindly and you will make him a thief; whip him and he will rise up and thank you, and be your humble servant. Servile and timid, superstitious and indolent, the Quichuans have not half the spirit of the North American Indians. It has passed into a proverb, "The Indian lives without shame, dies without fear, and eats without repugnance."

The *An*[illegible] or *Campas*.—From the point of the Chaguaris, situated on [illegible] right bank of the Huillcamayo,[1] at the commencement of the river region of the Montañas, lies the territory of the Antis or Campas Indians, extending 75 leagues up to the confluence of this river with the one called Comisia. The country is rocky and hilly until arriving within a mile of the Chibucuni cascade, when it gradually disappears, meeting afterwards only some promontories, commencing with the pampas of Sacramento. The climate is very hot, sky generally clear, except when there are rains; agreeable breezes blow during the day, tempering the heat. The course of the river through the rocky country is very winding; there are 125 rapids.

The men are generally of an average height, bronze in colour, with small faces, short and flat noses, eyes black without vivacity, heavy lips, small hands and

[1] Necklace River. *Huillca* means necklace, and *mayo* river, in Quichua.

[redacted]

INDIANS ON THE UCAYALI.

Face page 53.

feet. The little beard they possess they pull out by the roots with two shells, which serve them as pincers; they have a pleasing physiognomy; they do not paint the face; the women are generally ugly. Both sexes have long hair, and cut it at the birth of their first son, and usually at other births.

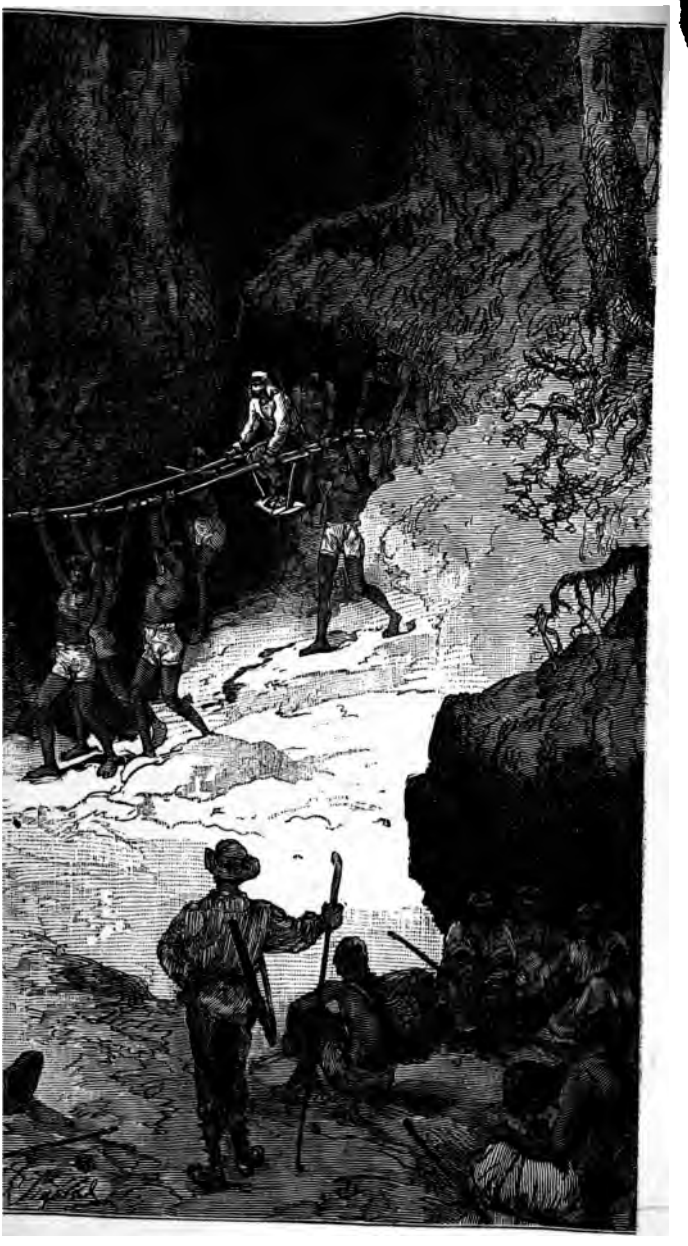
Of the savages who inhabit the banks of the Huillcamayo and the Ucayali, this is the only tribe in which the women appear modest in dress. Some of the men are accustomed to place a wooden hoop with bird-feathers on their heads, but this does not betoken any distinction. It is common among both sexes to hang from the gristle of the nose a kind of silver medal, and make a hole below the lower lip into which they introduce a wooden peg; it is likewise customary to tie woven cotton bands round the ankles and wrists and to adorn the neck with necklaces of bugles or small carved pieces of wood, from which hang threads which fall upon the shoulders, on the ends of these threads they tie the dried plumage of birds. Their mode of speaking is pleasing, being soft, and delivered in a kind of chanting monotone. They are of a melancholy disposition, not very frank, and naturally indolent, as the cultivation of the land is exclusively attended to by the women. A Campa seldom is cheerful, and the most that can be obtained from him in that way is an expression of approbation. They take an interest in anything only when they desire it, but it is just to say they possess no bad intentions.

There are other Indians as well as the Campas who are without a history, although by tradition they are said to have held sway over the savage *Piros*, their rivals and neighbours. There is no doubt that were they to live united they would be richer in productions, and improved in character; but at the present time it is otherwise, because they have become at variance through the wars which have taken place. There are hardly two families which are united; the shortest distance of one house from another is not less than three leagues, and sometimes as much as eight; their habitations are not built on the banks of the river Huillcamayo, but on the plains, on the top of the quebrada (broken country). These precautions are necessary, because the Piros, who usually go to the Cháguaris in the month of July, carrying animals from the Montaña and other articles of barter, rob as many

people as they can on the road. It is only when a Campa is pressed by hunger that he goes out for provisions, as otherwise he would never exert himself to procure them. They sleep extended on the ground near a fire, their feet placed as near to it as possible. When one of them dies, they throw the body into the river, after tying the hands and feet, and placing large stones upon it to submerge it—a precaution they adopt to avoid its reappearance, as they are taught by an old tradition. They do not recognise a chief, for although they have some whom they call captains, they never show any obedience to them; this title is given them in consequence of having acquired great dexterity in hunting and fishing, and for possessing a knowledge of at least two or three dialects. They are without any religious belief, and only have an idea of an evil being, whom they call *Camac arinchi*, and in other tribes *Miajamunchi Iltuchi*, equivalent to the devil. Polygamy is in practice amongst all the savages, each one keeping as many women as he can, taking them from their parents, and giving them in exchange hatchets, knives, and other hardware; the orderly manner in which they live together is remarkable. Their agricultural productions are coca, tobacco, cotton, yucas, racachas (a plant, a kind of papas or potato), camiotes (sweet potatoes), plantains of three sorts, pines, papayas, sugar-cane, maize, and mani (gum). Game and fish are not plentiful. The articles of commerce which the Indians receive in exchange for their products are hatchets, knives, scissors, needles, fish-hooks, buttons, beads, &c.

The *Marubos*, on the Javari river, are of dark complexion, with a slight beard. On the west side of Narwei roam the *Majeionas*, a fierce tribe of hostile, light-bearded cannibals.

Bovo de Revello, an Italian friar, who has travelled a great deal in various parts of the world, and who is himself a clever naturalist and geographer, states, as his opinion, that for missionaries of scientific tastes there are boundless opportunities in the interior of Peru for pursuing their investigations while engaged in spreading the Gospel.



JOURNEY ON LITTER NEAR NAPO.

Face page 55.

COMPARISON OF AMAZONIAN VOCABULARIES.

English.	Tupí.	Quichua.	Omágua.	Yágua.	Tucúna.	Cocáma.	Jévero.	Yáparo.	Cónibos.	Cámpa.
Man ...	Abajaso ...	Runa [1]	Apisára ...	Huano	Iyaté	Yapisara	.....	.....	Huóvo .	Chirari
Woman.	Cunba ...	Huármi	Huaynsow.	Huapiruna	Ihié	Huayná	Quapilusa .	... ..	.....	Chinani
Father .	Ipaya	Yáya [2]...	Tapápa ...	Yen	.....	Tátahua	Pápa	Apocbója ...	Papa ...	Apa
Mother .	Iwaya.....	Máma	Tamàma ...	Nihuá	.....	.....	Ahua	Anno	Icla	Ina
Head ...	Jacam ...	Uma ...	.....	.....	.....	Yakí.....	Mata	.....	Huasca.	Nogoti
Hand ...	Po	Maquí	.....	Samutú ...	.....	Itua	.....	Cuichoác.....	.....	Naco
Foot ...	Pui.....	Chaquí	.....	Nimatú ...	.....	Pínta	Landic.....	.....	Tau ...	Nachapagái
Water...	E	Yacu ...	Yacu	Ash	Dechieb	Une	Dik	.....	Nasin ...	Churio
Fire ..	Tala	Niná ...	Taca	Jigney	Ejteh	Tata.....	Prim	.....	Quiche .	Chichi
Day ...	Ara.....	Punchas	Ara	Niana	Hunehi	Cirruchi	Ooktili ...	.....	.....	Quintalinta
Night ...	Putuna ...	Tuta ...	Epuesa ...	Neporá ...	Suitán	Ipsinga	Dikpolik ...	.....	.....	Echitiniqui
Sun.....	Coraçí ...	Yncti ..	Veï	Hini.....	Ehajeh.....	Caruchi	Quecki.....	.....	Vari ...	Ponatiri
Moon ...	Yacé	Quilla...	Yacé	Arimaney .	Tahue majeh.	Yasí	Darquir ...	.....	Ushi ...	Cuchoü
One ...	jépe	Huc ...	Uijepe.....	Tiquí	Huech	Huipi	Alazá	Noquí	Avicto .	Impoquiro
Two ...	Mocoën ...	Ishcay	Mocuyta ...	Nanoijoi ...	Tarepuech ...	Moqacapuca .	Catula.....	Ammasaniquí	Raboi...	Pitari
Three ...	Mésapéré.	Quimsa	Mosaperuta	Nomuhl ...	Towepuech...	Mutoa-parika.	Cola	Imucá maraquí	.....	Canúti

[1] Runa is the general philosophical expression to designate mankind, speaking by sex is Hari
[2] Yáya means the older. Tuyta is the usual term.

VOCABULARIES FROM THE QÚICHUA, ZÁPARO, AND YÁGUA LANGUAGES.

English.	Qúichua.	Záparo.	Yágua.
Father	Yáya or Tayka..	Apochójo ...	Yen
Mother	Máma	Aúno	Nihuá
Son (said by father)	Chúri	Niáto	Poén
Son (said by mother) ...	Cári huáhua ...	Tanqú	Poén
Daughter (said by father) ...	Ushúshi	Coniát or cuniató	
Daughter (said by mother) ...	Huármi huáhua.	Itúm	
Own father ...	Quíquin yáya ...	Cuqu máno	
Own mother ...	Quíquin máma ..	Ia Cuáno	
Stepfather ...	La yáya	Táma quíra	
Stepmother ...	La máma... ...	Táma quíra (máma ?)	
Own son	Quíquin chúri ...	Ia cuniána	
Stepson	Quípai chúri ...	Saquína cuniána	
Elder son (said by father) ...	Cúra (or ñáupa) chúri	Cuniapíra	
Elder son (said by mother) ...	Cúra (or ñáupa) huáhua... ...	Cuniapíra	
Younger son (said by mother) ...	Súllca (or quípa) chúri	Nunoé	
Younger daughter (said by father) ...	Súllca (or quípa) ushúshi ...	Nunoé cuniató	
Only son (said by father) ...	Zapálla (or zapái) chúri	Noquí cuniána...	Tíqui rai (huahua)
Only son (said by mother) ...	Zapálla (or zapái) cári huáhua	Noqui túacho cuniána	Tíqui rai (huahua)
Grandson ...	Cári huáhuay ...	Cuajenáño	
Granddaughter.	Huármi huáhuay		
Great grandson.	Cári villca ...	Cuajenáño	
Great great grandson ...	Cári chupúllu		
Grandfather ...	Hátun yáya ...	Quirráito piatzo	Yen
Grandmother ...	Hátun máma ...	Quirráito occuáje	
Great grandfather	Machúi yáya ...	Quirrishepúi	
Great grandmother... ...	Payo (or ápa) máma ...	Pára	
Great great grandfather ...	Apúsqui (or Apúnahe) yáya	Piátzo	

English.	Qúichua.	Záparo.	Yágua.
Ancestors ...	Apúsqui cuna ...	Idasipóá	
Brother (said by male)	Hauaúqui ...	Cuquitiáño ...	Rai táire
Brother (said by female) ...	Túri	Cuánuo	Rai puipuím
Sister (said by male) ...	Pána...	Cuirimáto ...	Rai pópo
Sister (said by female) ...	Náña...	Taquí	Rai taíretu
Elder brother ...	Cúrac huaúqui..	Irishia cuquiño	
Younger ,, ...	Súllca huaúqui..	Noquí	
Cousin (said by male) ...	Chispa huaúqui.	Cuaneráno ...	Primoíne
Cousin (said by female) ...	Chispa tuni ...	Cuaneráno ...	Primaíne
Second cousin...	Cailla chispa huaúqui ...	Cuaneráno (or Cuanerania)	
Third cousin ...	Cáru chispa huaúqui ...	Cuaneráno (or Cuanerania)	
Uncle (father's brother) ...	Yáyapác huaúqui (or háchi) ...	Taúco	
Uncle (mother's brother) ...	Mámapác (or caca) turi ...	Cuanoro	
Aunt (father's sister) ...	Ypá (or Marañon tiaíne)	Cuiquiña	
Aunt (mother's sister) ...	Mámapác ñáña..	Cuáno cuíño	
Father-in-law ...	Cacáy (of male); quihuachí (of female)		
Mother-in-law...	Quihuác (of male); Quihuachí (of female)		
Son-in-law ...	Màsha	Acamia ...	Quiria
Daughter-in-law	Kachún ...	Cuari ráno	
Brother-in-law..	Masaní (or catày)	Cuajino jóno	
Sister-in-law ...	Ypá (or Kachún púra)		
Godson	Chúri cáshcai (or Cháscai) ...	(not used)	
Godfather ...	Shutichío (or Shutísihca) yáya	Na chiatáno	
Godmother ...	Shutichíc (or Shutísihca) màma	Noachozáno	

English.	Qúichua.	Záparo.	Yágua.
Brother	Aíllu...	Cuaramá	(same as brother)
Husband	Kosa (always the *k* guttural) ...	Cuirán	Rai-huáno
Wife...	Huármi ...	Cuirichán	Rai-huaurá
Widower	Huácicha cári ...	Machícho	
Widow	Huácicha huármi	Machícho	
Twins	Yshcai huacháshca (or huachác)	Sárro	
Hand	Maquí	Cuichoác	Samutú
Foot...	Chaquí	Cuiñocá	Nimatú
Fingers	Maquí pálca ...	Canasú	
Toes...	Chaquí pálca ...	Cuiñocá canasú	
Thumb ...	(No separate term for thumb or leg toe)... ...	Cumacaná	
God	Apúnchi - yaya (God our Father)	Piátzo	Tupanà
One	Shuc (or Shug)	Noquí	Tiquí
Two...	Ishcay	Ammassaniquí...	Nanoíjoi
Three	Quimsa	Imucú maraquí..	Momuhí
Four...	Tahua	Above 3 they have no name, but show their fingers. They do not count above ten.	Nañunjuía
Five ...	Píscha ... (or pítchca) ...		Tanaíjo
Six	Sócta		Tiqúi ñiháte
Seven	Cánchis ...		Nañoujaiáte
Eight	Púsac (or Púsag)		Momunhuaiáte
Nine...	Iscún		Nañauyuíaáto
Ten	Arunca		Naujui
Eleven	Chúnca-hucniok		(go no higher)
Twelve	Chúnca - ishcayniok		
Twenty	Ischa-chúnca ...		
Twenty-one ...	Ischa - chuncahuc		
Thirty	Quimsa-chúnga,.		
One hundred ...	Páchac (or Pátzag)... ...		
One thousand ...	Guarángo... ...		
10,000 would be	Chúnga - guaránga		

Ordinal numbers.—Nlqui is joined to the number, thus:—1st is Shug Niqui; 2nd is Ischay Niqui, &c.

The Conibós count by twos. Thus, one is avicho; two is rabói; above two, so many two's, as:—four (= two 2's), rabói-rabói; six (= three 2's), rabói-rabói-rabói.

Authors assign to South America from 280 to 700 languages, of which two-fifths are composed of idioms radically distinct. The polyglot America is antipodal to the Chinese; the language of the former is richest in words; that of the latter the poorest. The preposition follows the noun, and the verb ends the sentence.

POPULATION OF THE AMAZON.

Prof. Orton says:—"The valley of the Amazon is probably the most sparsely populated region on the globe. There are not 40,000 souls along the banks of the rivers in the whole of the Amazon and the Marañon. Many of the towns marked on the map do not exist, or are represented by a solitary palm hut. The visible population is almost confined to the circumference of the valley; as at Pará at the mouth of the river, at Moyobamba, and at Tarapoto. The great basin is filled with a continuous, dark, primæval forest, rarely disturbed by the hand of man, and into which daylight seldom enters. Yet imagination peoples this pathless wilderness with uncounted swarms of savages. There are, it is true, numerous clans, we can hardly call them tribes, which, though dignified with separate names, are insignificant in numbers, barely numbering a hundred each. Raimondi puts down the number of all the wild Indians on the Marañon—that is, in the whole province of Loreto, which stretches from Equador to Cuzco, and from the top of the Andes to Brazil—as from thirty to forty thousand. To this must be added another forty thousand to include the civilised tribes, half-castes, and whites."

CHAPTER V.

Reports of Scientific Travellers.

REPORT OF M. OLIVIER ORDINAIRE ON THE NAVIGATION AND COLONISATION IN THE AMAZON PROVINCES.

THE following is extracted from the Report by M. Olivier Ordinaire to the Geographical Society of Paris, 1886. This traveller, having lately made a journey across the Andes, gives a full description of the country he passed through. He states :—

Owing to the badness of the roads, goods are at present transported on men's backs, and the journey from Lima to Iquitos generally takes forty-five days to accomplish. He passed down many of the rivers, studying the numerous productions of its valleys, and the advantages they offer to commerce and colonisation. His report is limited purely to commerce and statistics. Caucho, or india-rubber, represents the greater part of the exportation. According to the Manifests in the Custom House of Iquitos, there was exported during 1884 and 1885 :—

	1884.	1885.
India-rubber...	540,529 kilos	714,161 kilos
Straw Hats	48,204 pieces	32,770 pieces
Tobacco	22,714 kilos	23,110 kilos
Sarsaparilla	18,586 ,,	7,469 ,,

The Loreto Department has also exported, in lesser quantities, vegetable ivory, cascarilla, copaiba, parchi or pirarucu, chambira (textile vegetable material), and a certain quantity of gold taken from the affluents of the river Marañon, which, not having been registered in the

Custom House, has not been valued. The navigation of the main Amazon River is represented by 150 sailing-ships and many lines of steamers, which carry on a regular service from Para—the port at the mouth of the Amazon—with Manaos, situated 872 miles up the river. The following is the list of steamers and the number of voyages they made during last year to the Amazon. The Brasilera del Sur Company's vessels made thirty-six voyages to Para and thirty-six to Manaos. The North-American Steamship Company's vessels made twelve voyages to Para and twelve to Manaos. The English Company, Booth Line, made twelve voyages to Para and nine to Manaos. The English Company, Red Cross Line, made twelve voyages to Para and nine to Manaos. Para possesses thirty-seven steamers, from 100 tons to 700 tons. Some of them at fixed dates ascend the Puras and Madeira. Large steamers ascend the river, not only to Iquitos, but as far as Yurrimaguas, on the Huallaga. The distance from Manaos to Iquitos is 1,130 miles, and from Iquitos to Yurrimaguas 458 miles. The following table shows the steamers navigating the Peruvian Amazons :—

Name of Steamer.	Flag.	Tonnage.	Journey.	No. of voyages per annum.
Santarem ...	B.	400	Manaos to Iquitos ...	12
Solimoes ...	B.	200	Manaos to River Javari	12
Macapa ...	B.	680	Para to Yurrimaguas	4
Juruti	B.	200	,, ,,	4
Gran Para ..	B.	500	,,	4
Amazonia ...	B.	570	, ,,	4
Angosto ...	B.	240	, ,,	4

The river Javari—which separates Peru from Brazil—is navigable for a distance of 260 miles, and has not only been visited by the *Solimoes*, but also many times by the *Solimoes* and the *Amazonia* on their return voyage. The river Ucayali is, of all the affluents of the Upper Amazon, that which exports most india-rubber. It is navigable for over 700 miles.

SHIPPING.

Twelve steam launches, from 2 to 100 tons, belong to Iquitos and navigate the Ucayali and other Peruvian rivers. Having descended the rivers Palcaza and Pachitea in canoe and balsa and the Ucayali in steam-launch, M. Ordinaire proceeded to Nauta (a port on the Marañon) in the steamer *Amazonia* and ascended the river as far as Yurrimaguas and descending the Amazon to Para, after having made a voyage of 120 miles in the river Yavari. The voyage of the *Amazonia* to Yurrimaguas, going and returning, with all its stoppages, lasts three months. M. Ordinaire left Para at the beginning of November, 1885, and returned 3rd February, 1886. The steamers *Macapa* and *Amazonia* are the largest steamers which call at Yurrimaguas. The steamer *Viren* is of 600 tons register, but the vessels most convenient for the fluvial navigation are those having flat bottoms, which run no risks in crossing the bars of earth or sand. Steamers drawing over 12 feet of water during the months of July and August cannot call at Iquitos, being obliged at this season by lowness of the river to anchor half a mile off the port. In 1863 the bark *Arica*, of 800 tons, and drawing 17 to 18 feet (English) of water, entered Iquitos towed by the steamer *Morona*, of 500 tons.

EXPORTS FROM IQUITOS.

The report of the Sub-Prefect of the province of the Upper Amazon, Otoniel Melina, dated Iquitos, 2nd December, 1886, appears in the official Gazette *El Peruano*, 23rd December, 1886. In this report the Prefect urges the Peruvian Government to introduce European immigrants to those regions. He proposes that immigrants should be brought from Europe by the State's own vessels; the ships should be 800 to 1,000 tons burthen, auxiliary steam. Houses should be prepared beforehand to receive the immigrants, and a stock of implements and provisions given to them at the expense of the State, for at the end of six months their lands would be cultivated and they would be enabled to grow their own food and be independent of Government aid. Iquitos is

in a flourishing state on account of the great demand for india-rubber, which brings a mine of wealth to the merchants engaged in the trade. The value of the importations into Iquitos has been during the past six months as follows:—

	Value of Invoices.	Value in Peruvian Money. Soles.
Germany	Mcs 6,383·00	1,595·75
Brazil.....	Reis 68,916·00	38,286·66
United States	$14,916·84	14,199·84
France	Frcs 228,353·40	45,667·08
England	£14,338 16 10	71,694·20
Portugal	Reis 1,687·401	1,874·89
Plaza	Reis 73,497·000	40,831·66
Aduana	Reis 133,938·000	74,410·00
		288,560·08

During the same half year, there have been exported from Iquitos 554,344 kilogrammes of india-rubber. The productions of the five districts which form the Lower Amazons are india-rubber, fine gutta-percha, brandy, vegetable ivory, copaiba, oil from the paca-marina, salted fish, sarsaparilla, building timber, gold dust, &c. These are the principal articles which serve for return for merchandise imported. Trade is rising in importance, and at times there is insufficiency of steam tonnage, and it is very desirable that this should be extended. The colony is a model of morality, order, and industry, and the obedience and respect shown to the authorities is admirable. The commercial and agricultural interests are flourishing under the good administration of the authorities of the colony. The blessings which Europe has hitherto derived from North America will soon flow to her from the Southern Continent. To the former the gate of entrance is only open to a few on certain conditions, but to the latter all are welcomed.

SPECIAL CUSTOMS TARIFF FOR GOODS IMPORTED AT AMAZONIAN PORTS.

M. Ordinaire continues:—Articles of importation are not subject to the Custom's tariffs, which affect goods landed in the ports of the West Coast of Peru. The import duties which, either at Lima or in the

Brazils are charged at 30 to 40 per cent. on the estimated value of the articles, are not charged on goods which come by the Amazons to Eastern Peru, but at 7½ per cent. only on the invoiced value. The advantage is the same for the export trade. While the Brazilian india-rubber pays an export duty of 23 per cent. on its value, that which is exported from Peru does not pay more than 4 per cent.

The market at Iquitos has been for many years tributary to that of Para, which, from its long established connexion and from its maritime situation at the mouth of the Amazon, was the general depôt of these regions. But for some few years past, the increase of the exportations of the Loreto Department has permitted Iquitos, at least in a great measure, to free itself from this tutelage.

It now obtains direct from Europe or the United States its requirements, which undergo only one transhipment, at Para or Manaos.

From the statistics of importation of the Department, the countries with which trade is carried on are classified in the following order:—

1st. England.
2nd. United States.
3rd. France.
4th. Germany.
5th. Portugal.

ARTICLES IMPORTED.

England sends *indianas* (calicos) and ordinary cotton stuffs; the United States its flour, cheese, sewing machines, rough furniture, petroleum, and hatchets; France, silk stuffs, perfumery, wines, and preserves; Germany sends cashmeres, woollen and cotton goods, beer, and all kinds of fishing tackle, &c.; Portugal divides with France and the United States the trade in preserves; it imports likewise a light and commodious kind of shoe, the use of which is general in the Amazon regions.

Amongst the articles of considerable sale in the Montaña, and which is specially manufactured for it in the form which their habits and customs require, I will mention

the *ipulli*, a knife with a large blade, used for cutting grass, and the *machete* (axe), which every man carries who penetrates the forests.

SYSTEM OF TRADING.

One arroba (25·320 lb.) of india-rubber is worth on the Ucayali to the workman who supplies it, 10 soles (33s. 4d.) worth of goods. This system is suitable to the Indian, who fears neither hunger nor cold, who does not know what the words *wealth* and *misery* mean, and who only works in order to obtain the object which he has seen. In his turn the buyer who comes and seeks the india-rubber, in steam-launches or canoes, pays for it, at the least in part, with goods, and this system of direct barter causes an important coasting trade.

PROGRESS OF CIVILISATION AMONGST THE CAMPAS INDIANS.

If one ascends the rivers as far as the country of the Campas, who live in a region towards the Andes, natives are met with who have no idea of the value of goods compared with silver. A piece of money has no more value to them than a perforated bead, or a portion of a necklace. These Campas, who have been considered for a long time to be dangerous and rebels to all civilisation, are as capable of work as the others, and besides, carry out their engagements. In the confluence of the rivers Palcaza and Chuchuras, in a region which was up to the present considered as completely deserted, M. Ordinaire found the dwelling of a German, established there about four years. He had succeeded in drawing around him some sixty Campas families, who were living within several leagues' radius of his dwellings. They could gather about 100 arrobas of india-rubber annually. According to the calculation which he himself gave M. Ordinaire, each arroba is worth in Iquitos fourteen to fifteen soles (fifty-six to sixty francs), obtaining it for two reals (fivepence), that is to say, less than one franc, paid in goods to the Campas, who, besides, took care of his plantation of yucas and palms, and provided him with abundance of game.

The increase in distance, and expenses of transport, are far from counterbalancing such advantages. It may be in

general said, that for the working of the india-rubber and of similar products of great value, the most distant place in the civilised regions is the best for the colonist.

AGRICULTURE.

Although the land is fertile to excess, agriculture scarcely exists in the Loreto Department. All the activity of the colonists is absorbed in the working of and trading in india-rubber. Perhaps there does not exist a region more favourable for the cultivation of rice, and yet almost the whole of the rice which is consumed in the country,—where the land belongs to the first who occupies it,—is imported from Brazil. Potatoes are imported from Havre and Lisbon; this is a remarkable fact, when we take into consideration that Peru was the original country of the potato, and that if it grows badly in the Montaña, the neighbouring Cordillera produces it in abundance, and of the best possible quality. It is true that in order to seek for it, it would be necessary to make a road first, and this appears to be what the india-rubber gatherers think the least of doing.

The Peruvian Amazons do not export, in reality, other agricultural products than tobacco from Tarapoto. The sugar cane cultivated in some of the estates of the Marañon is converted into *tafia* (aguardiente from sugar), which is consumed in the Department. The plough is unknown. After having burned the land, they plant and sow without moving it. In the Ucayali valley they make use of the mud deposited by the river on its banks. When the waters are low, they sow on the beaches maize, turnips, onions, &c. Maize comes to maturity in four months, turnips and onions in three. In the estates on the Marañon, the sugar cane, three or four mètres high, is cut every eight or nine months.

FERTILITY OF THE VINE.

What attracted M. Ordinaire's attention the most in the immense Amazon regions was the fertility of the vines. His surprise was greater in meeting with vines along the road when he knew that in the Chanchamayo, an elevated valley of the Montaña, plantations had not met with success; and he was thus convinced that the failure of the trial pro-

ceeded from the omission made of not pruning the shoots. The first vine-stock which he found was in Yurrimaguas. It alone formed one immense bower which contained over 300 bunches of a medium size, of a good black colour, and slightly acid. He saw others similar on many estates, particularly in Caballo-Cocha, on the banks of a small affluent of the Marañon, and was assured in all these places that they yielded regularly *three crops annually*. By merely passing in transit he was unable, as is natural, to prove the fact himself, but it is certain that the vine gives in that country exceptional results. However, nobody has yet cultivated it in the Department for the purpose of making wine. All that is drunk in Iquitos is imported from Europe, and is very dear. The same occurs with vegetables, which come from the Ucayali, and are paid for at high prices. Thus it is that horticultural cultivation and the making of wine would give, in the neighbourhood of that town, safe and sure profit, perhaps more than india-rubber. In consequence of its separation from the capital, and of the want of means of communication with the Pacific, and likewise of the desire of the Peruvian Government to favour the colonisation of the rich regions of the Montaña, the Peruvian Amazons lead, from a commercial point of view, an independent life.—Translated from *El Comercio de Lima*, 22nd April, 1887.

EXPEDITION OF MR. GEORGE P. JAMES FROM THE CHANCHAMAYO IN PERU TO THE ATLANTIC.*

Mr. George P. James, who has a sugar estate on the banks of the Chanchamayo river, undertook a journey to explore the region between that position and the Perene. His estate is near the village of La Merced, on the Chanchamayo. He set out on the 17th of July, 1886, accompanied by an Italian named Bogo, who could speak the language of the Chunchos, and was reputed to have a certain influence over them. But both these qualifications appear to have been much exaggerated. Mr. James resolved to

* Communicated by Mr. C. R. Markham, C.B., F.R.S., Secretary. —From *El Comercio de Lima*, 3rd May, 1887.

follow up the right bank of the Paucartambo, and thence to reach the famous Cerro de la Sal.

In the hamlet of San Luis, which is situated on the Cerro de la Sal, they found a missionary named Sala. The good father arranged that the travellers should be accompanied by a lay brother, who turned out to be an energetic and courageous comrade. The party took leave of the good father, and set out in the direction of Palcazu, that is to say, they entered an unknown tract of country.

James was armed with a repeating rifle, a revolver, and a well-sharpened wood-knife (*machete*). Bogo was also well armed, and the lay brother was provided with a machete, an indispensable companion in that forest region. They pushed valiantly on, slipping through the dense undergrowth, or opening a way with their wood-knives, the compass being their only guide. At length they came in sight of the river Palcazu, which had been described to them as navigable. This, unfortunately, was not the case, at least in the dry season, and it was necessary for them to march along its right bank, following the course of the stream, and wading across the small tributaries, during three days, when they reached a point where the river was really navigable in *balsas*.

Between the Paucartambo and the Palcazu they only met with one river of little volume, which they easily crossed. It is one of the tributaries of the Perene.

At the point where the Palcazu became navigable, as well as at other places along the banks, they came upon habitations of wild Indians. These people appeared to be hostile at first, but as soon as they saw the cordiality with which the Englishman and the Italian drank their *masato*, and took part in their dances and noisy amusements, they forgot their suspicions and treated the strangers as old friends. When the drinking bout was over, the chief of these Indians was very useful, and it was due to him that they procured three small balsas, one for each traveller and an Indian in each to guide them. They embarked in the morning, taking care to fasten all their traps to the poles of the balsas, and at about noon, being carried down by the rapid current, they reached Chincheros, a place situated at the point where the river of the same name falls

into the Palcazu. This station appeared to have commercial relations with Huancabamba.

Proceeding on the voyage, the navigators stopped at a hut for the night, and during the hours of sleep the three Indians escaped in one of the balsas and were not heard of again, but they did not take anything. This accident caused them to lose all the next day, for the Indian who owned the hut refused to go with them. At length he yielded to their promises. They made one balsa out of the two which the fugitive Indians had left, and embarked once more.

After two hours the Indian, either by accident or design, lost his paddle, and, on the pretext of making another, he went into the forest and also disappeared. There was nothing left for the three adventurers but to continue the voyage alone, and this they determined to do. Nothing occurred during the following day. The current took them down the river with moderate speed, and no natives were seen on its banks. In the evening they selected a beach on which to pass the night, continuing the voyage on the following day. But at ten o'clock in the forenoon the balsa struck upon a rock and capsized. When Mr. James came to the surface the lay brother was already on the capsized balsa, and Bogo was swimming with one hand on it. Mr. James soon reached it also. Half an hour afterwards, swimming down the river with the help of the balsa, they succeeded in beaching her just at the point where the river Lagarto falls into the Palcazu.

The things which were on the balsa had all been well secured, and, with the exception of Mr. James's boots, nothing was lost in the shipwreck. The afternoon and night were passed without food, but next morning an Indian came to their help, lighted a fire, and enabled them to appease their hunger with boiled yucas. Having dried their clothes, refreshed themselves, and righted the balsa, they continued the descent of the river, and arrived next day at the junction of the Pichis with the Palcazu, when the united stream is called the Pachitea. Here they had the pleasure of meeting the Peruvian india-rubber collector, Davila, who was on a voyage with a small supply of that product, and who conducted them to a place

called Santa Isabel, the residence of a German india-rubber merchant.

They remained at Santa Isabel for a whole week, waiting for another india-rubber collector. At length he arrived, accompanied by two monks, who said they were going to the Pozuzu, though it afterwards turned out that they were on their way to the Pichis. The lay brother joined them, so that Mr. James was left with the Italian Bogo as his sole companion. They made the voyage down the Pachitea in a canoe, guided by the india-rubber merchant. It was prosperous down the whole course of that great river, but on arriving near its junction with the Ucayali, owing to having started before dawn, the canoe struck upon the trunk of a tree half-covered by water, and capsized. This time the travellers lost everything they had with them.

The position where this accident befel them was a mile above the confluence of the Pachitea with the Ucayali. The canoe was not stove in, so that they were able to right her again and to reach a place where they fell in with the small steamer *Mayro*, which took them down to Iquitos. After a forced residence of five weeks at Iquitos, Mr. James continued his voyage to Pará; proceeding thence to Barbadoes and Trinidad, he returned to Peru by way of Panama. On May 7, 1887, he left Lima on his way back to his estate on the Chanchamayo.

During the whole of his journey Mr. James only saw two snakes and one puma; the puma walked past his camp at night without doing any harm. Mr. James has thrown light on the geography of a part of the forest-covered Montaña of Eastern Peru which was previously unknown. The practical results of his voyage are not without interest. The Palcazu is not really a navigable river, but the Pichis is suited for navigation. The latter river is, therefore, the point to which attention should be turned by those who desire to open a practicable route from the central regions of Peru to the Ucayali. At present 5,000 men from Tarapoto, machete in hand, are occupied in felling the caoutchouc trees on the hills overlooking the Pichis. The *caucho* (*Castilloa?*) india-rubber tree is felled, while the *jeve* (*Hevea* or *Siphonia?*) is merely cut across the bark of the trunk, to obtain the caoutchouc juice. Hence the mischief that is

being done by these 5,000 men from Tarapoto is considerable, although the caucho-trees increase and multiply with comparative rapidity. Another army of depredators comes up the Ucayali, and another up the Javari, for the exclusive benefit of Brazilian trade.

Mr. James does not think that it would be of immediate utility to open a road from Chanchamayo to the Pichis, because, by the time it was finished, the 5,000 *caucheros* would have completed the work of destruction. It would be useless to open such a road for purposes of exportation so long as a heavier freight is paid for goods from Iquitos to Pará than from Callao to Europe. As regards the export of timber on a large scale, there already exists a North American colony at Santarem occupied entirely in the timber trade.

In Mr. James's view, the most useful measure, as regards the Peruvian forest region, which is very fertile and enjoys a healthy and agreeable climate, would be its colonisation. When that is effected, the construction of good routes to the Ucayali will become necessary.

Mr. James is an enthusiastic traveller, and is willing to take part in any other exploring expedition which may be undertaken by the Peruvian Government.[1]

PROFESSOR ORTON'S DESCRIPTION OP THE AMAZON PROVINCES OF PERU.

Respecting the eastern slope of the Andes Mountains, which lies in Peruvian territory, no traveller has made a deeper research into these regions than the late Professor Orton, the eminent North American explorer, who threw himself most earnestly into the noble work, and has left to the world the valuable results of his labours. He says :—Peru has immense capabilities. She is the France of the South American continent. All the fruits and grains of the earth here find a congenial and fertile soil. With the great Pacific on her left, and the navigable sources of the Amazon on her right,—with mountains of

[1] "Proceedings R.G.S.," August, 1887.

mineral wealth untouched—with highland valleys, like the overhanging gardens of Babylon for beauty, and with plains and reclaimable pampas which might equal Egypt in fertility, Peru is potentially one of the richest countries on the globe.

No other country can furnish 6,000 miles of continual internal navigation for large vessels. For 2,000 miles from its mouth the main stream has not less than seven fathoms of water, and not a fall interrupts navigation for 2,600 miles. It is impossible to avoid asking the question what is to become of this great region—this grand system of inland navigation—these thousand and one products of nature? The wealth of an empire is yearly lost in these boundless forests. These rich resources, lying almost at our very doors, must soon appeal to that restless spirit of enterprise and commercial activity which, not content with its past triumphs, longs for new conquests and a wider field of exercise. The Marañon (the name given to the upper part of the Amazon as it enters Peruvian territory) is a region of inexhaustible fertility, and would yield ample return to energy and capital. The villages are open to foreign commerce free of duty; but at present the voice of civilised man is seldom heard save on the fluvial highway between Moyobamba and the Brazilian ports.

One looks forward to the dazzling future of this great valley, when the ships of all nations will crowd the network of rivers for the gold and perfumes, the gems and woods of the great Western Ophir.

PROFESSOR RAIMONDI ON THE AMAZON PROVINCES OF PERU.

Letter from SEÑOR ANTONIO RAIMONDI to SEÑOR DOCTOR MARIANO M. ALBORNOZ, *on the suitability of the regions of Cahuapanas for emigration. Translated from "El Nacional," 1st July,* 1887.

CAHUAPANAS, *June* 23, 1887.

MY ESTEEMED FRIEND,—I reply to your favour of this day. I feel that your patriotic works are not understood as they should be; but this is not to be wondered at, as

no great work has yet been accomplished without the promoters having experienced many hardships and difficulties in the undertaking. But, on the contrary, all that is taking place will show you that the steps you have already taken are making good progress. I can only advise you to persevere, because you have already given more than sufficient proofs of abnegation and exemplary firmness.

Besides, proved as it firmly is of the absolute necessity of the opening of a road from Chachapoyas to the navigable port of the Marañon, and, it being practicable, you ought not to leave this work until you see it accomplished, because all indecision would, under the present circumstances, be most inconvenient, which in your work is shown to be so necessary for the advancement of the Departments of Amazonas and Loreto.

Nothing less than the opening of this road will attract immigrants in sufficient numbers, the lands in these parts being those most suitable for agriculture; they contain natural resources in abundance, and the excellent climate makes them inhabitable. The opening of this road would greatly aid the establishing of populous towns, which would be the nucleus of others that would be established through the influx of immigrants to this region.

In Europe and the United States the advantages which the places before mentioned offer for emigration are well known, since many travellers have spoken of the fertility of the soils, of the geniality of the climate, and of what they possess to make life comfortable; and it is only necessary to introduce immigration and it will increase, according as greater facilities and accommodation are offered to immigrants, by means of the opening of good roads to the populated places of the Sierra, and in all the extent of Peruvian territory.

And the advantage is, that these works do not conflict one with the other; all are indispensable for the aggrandisement of the country, and the day will come when all will be realised; but it is necessary that a beginning should be made in some direction, and the work be continued until completed, and this is what I have always advised the Amazon people to do, whose conduct is very laudable in this respect.

Hoping that your patriotic efforts will be crowned with the most complete success in the briefest time possible,

I am, &c.,

ANTONIO RAIMONDI.

MR. ARTHUR WERTHEMAN'S OPINION OF THE AMAZONIAN PROVINCES.

The following is a letter from MR. ARTHUR WERTHEMAN, *the eminent German explorer, to* DOCTOR ALBORNOZ, *respecting the fertility of the Cahuapanas regions Translated from "El Comercio," 6th July,* 1887 :—

CAHUAPANAS, TURICO, *June 10th,* 1887.

MY ESTEEMED FRIEND,—I received yesterday your letter, to which it is difficult to reply as I should wish, I having lost all my documents in the wreck of the *Valdirca.*

I remember that, in the month of September, 1878, when I descended the river Cahuapanas, we experienced a minimum depth of 1 mètre 20 centimètres, or 4 feet, which is more than sufficient for steam launches, and, in the other months of the year, it has a far greater volume of water. Its current, on an average, was four miles per hour.

Presuming that the navigation from Barranquita is difficult, this will not be an inconvenience, since from the town of Cahuapanas to Barranquita there are only three leagues of road in a north-west direction, and to the river Sillay, which is as voluminous as the Cahuapanas, four leagues distant. From the town of Cahuapanas to the confluence of the rivers Cahuapanas and Marañon there are also nine leagues of level road, and though for want of water the traffic is interrupted for a month in the summer period, this will not be of great importance, as it happens at that period the steamers of Brazil do not reach Iquitos on account of the sandbanks outside the port, which does not affect very much the trade of Iquitos, and much less smaller places like Cahuapanas. For two months in the year the steamers only ascend the Huallaga as far as the Laguna, because the ordinary steamers are large, and the Huallaga has sharp bends in its course when the river is low.

The lands watered by the affluents of the Cahuapanas have great advantages as regards both climate and natural productions; the regions at the sources of the affluents are high and favourable for agriculture, and those of the pampas, partly flooded for three months of the year, contain much india-rubber, and are good for the cultivation of sarsaparilla, which even grows there spontaneously.

Sheep, which are so scarce in the whole Amazon valley, can be reared not far from Cahuapanas, since there is much land suitable for the purpose without being either cold or very warm. You must always remember, as I have told you, that in Peru the roads of vital importance are those from Cuzco to Urubamba, from Tarma and Chanchamayo to the Perene, from Huámico to Pozuzo and Pichis, from Pataz to the Huallaga, from Chachapoyas to Cahuapanas, from Moyobamba to Yurrimaguas. One of these roads does not make the other unnecessary,—all are exceedingly indispensable.

To make a road from Cahuapanas to Chisquilla, I think it will be more easy to begin at the source of the Hunguyacu, where there are some valuable lands. When I was in the Hunguyacu there were some Aguarunas tribes whose services would be useful for the expedition.

You ought to have a map which I sent you some time ago. A copy will render much assistance to those who may make the expedition from Iquitos; and, with regard to the details of the organisation of the expedition, they are very simple, and we have spoken sufficiently about them; it is necessary to form it of the forest people accustomed to the work.

Finally, my dear Doctor, be firm; do not give up the work after having sacrificed already so many years to this work of progress.—Your sincere friend,

A. WERTHEMAN.

REPORT OF MR. JEAN NÖTZLI ON THE PRESENT STATE OF CAJAMARCA AND COLONISATION OF THE MONTAÑA.

Mr. Jean Nötzli, a mining engineer, with whom the author had the honour of making acquaintance at Southampton, on the 10th March, 1887, at the time of his

[illegible] the following informa-
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[illegible] is exceedingly healthy.
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[illegible]—I consider the
[illegible] forming part of the Amazon Depart-
[illegible] particularly favourable for the establishment
[illegible], on account of the immensely rich pro-
ducts already accumulated there, such as coffee, cocoa,
coca, and valuable woods, all of which can be exported at
once by the facilities which the rivers afford for their
transport. Moreover, the soil is very fertile, and, with
a little labour, can be cultivated. In the immediate
neighbourhood there are [illegible], where the colonists can
[illegible] and silver metals. I have had
[illegible] rivers, and have

frequently been brought into contact with the Indians, who, although savages, are not dangerous, and have never molested me.

REPORT OF MR. OTTO RINGELING.

On the 7th April, 1887, the author had the pleasure of meeting Mr. Otto Ringeling, previous to his embarking from this port (Southampton) for Peru, who very kindly supplied him with the following information of his experience of Peru, which is given in his own words :—

I have been fourteen years resident in Peru, and have had occasion to know the interior—viz., the Sierra as well as the Montaña. As far as climate is concerned, no doubt the Sierra would be preferable to English and German colonists, on account of its similarity to their own countries ; but this part of Peru is poor compared with the immense fertility of the Montaña, where the richest products can easily be cultivated, such as coffee, sugar, tobacco, &c. Not the least of the rich productions of the Montaña consists in all sorts of splendid kinds of woods. In the colony of Chanchamayo, carpenters who were engaged there on behalf of the Government found woods of fourteen different colours, all of a superior quality, the cedar being the poorest and most common kind. These woods would replace with great advantage the finest descriptions now in use in Europe. Any part of the eastward slope of the Cordillera towards the Amazons would be a fit place for European immigration, so soon as that part of the country is put in connexion with the coast by rail, or with the Atlantic by means of fluvial navigation down the Amazons ; but, until this is done, all attempts at colonisation will be of little success, as is shown by the colonies of Chanchamayo and Pozuzo. Chanchamayo can no longer be considered a colony, but the work done by the colonists exists, and has been carried on by capitalists, who have bought the colonists out and have formed large haciendas of their lands which are now cultivated by them on a large scale. Certain how this happens :—The capitalists can cultivate lands more extensively, applying them to the crops of coffee, &c., which they can transport

to the Sierra or the coast, whereas the poor man has not the means of doing so, and therefore is compelled to dispose of his crop on the spot whenever an opportunity occurs for him to do so.

The colony of Pozuzo still exists. It consists of Tyrolese, who some twenty-five years ago settled in that part of the country, and have ever since cultivated it. They remain there cut off entirely from the civilised world; they earn enough for their own living, and, in fact, live well and are in good health; but they have not the means of making themselves a prosperous colony on account of want of communication and a market for their produce. No one ever interferes with them. They have their own church and schools, and live happily and contentedly together, cultivating crops of tobacco, coffee, fruit, and vegetables, and rearing horses, mules, cows, fowls, &c., for their own use; but as soon as communication by good roads, railways, and navigation is established, then, of course, everything will take another turn.

The want of Irrigation.—In the north of Peru there are extensive deserts of very fertile soil, which only want irrigation to allow the cultivation of any of the tropical plants, such as cotton, coffee, sugar-cane, tobacco, &c. The idea of irrigating these deserts from the rivers existing on the mountains has been brought to the notice of the Peruvian Government on previous occasions, but no efforts have as yet been made to carry out so important a work, although it could easily be done in the event of capital being found to execute it.

Mines.—Peru is provided with silver and gold-mines to a very great extent. Silver-mines are to be found on the western side of the Cordillera, especially on the higher part of the mountains; they lie, therefore, in the Sierra. A great many people are proprietors of silver-mines, and daily new mines are discovered, but, up till now, only a small number of them are worked, chiefly for want of labourers, and on account of their being situated in barren places in the mountains, far from towns and habitations. Nevertheless, the mining enterprise promises at the present moment to be one of the chief resources of Peru. Rich gold-mines exist on the eastern side of the Cordillera, and

in the valley of Carabaya, and in the Union province,[1] as the streams flowing down the Andes bring down quantities of gold which can be easily washed out, but up to the present time very few gold-mines have been opened up for want of capital and scientific labour. Any man working earnestly and soberly, and conducting himself as a good citizen, will prosper in Peru, in due time, whenever the above-mentioned improvements are carried out; and it ought to be the special care of the Peruvian Government to provide such facilities, as well as to take proper steps to guarantee the interests and protect in every way European immigrants to these parts of Peru.

THE REPORT OF MR. J. D. OSMERS, BOTANIST, ON THE MONTAÑA.

SAFETY AMONGST THE INDIANS. THEIR WILLINGNESS TO WORK.

The author had the pleasure of meeting the above distinguished botanist on the 13th of April, 1887, on his arrival at Southampton from the Brazils, who supplied him with the following information :—

Mr. Osmers said :—I visited the Amazon regions of Peru in November, 1883 arriving at Yurrimaguas, on the river Huallaga, on the 11th of that month. I engaged four mules and three men and set out in search of orchids. I was six months travelling about the forests amongst the tribes of Indians, and I can safely say that I was never molested in the least by any of them; but, on the contrary, I found the Indians to work well, and very ready to assist me in bringing down my cases of plants. With regard to the suitability of these parts for English and German colonisation, my opinion is that much would not, on account of the low swampy parts, be suitable, but the high lands of the eastern slope of the Cordilleras would undoubtedly be very suitable and healthy, on account of the climate being so much like England and my own country, as soon as communication from thence is opened up with the coast and to the fluvial navigation of the Amazons.

[1] The principal mines being the Huayllura, Palmaderas, and Montes Claros.

CLIMATE.—PROSPECTS FOR CAPITALISTS.—HOSPITALITY.

ACCOUNT OF A VISIT TO PERU BY A BRITISH NAVAL OFFICER.

An English naval officer, who has lately served four years on the Pacific station, has kindly favoured the author with a description of his visit there. After describing the various engineering difficulties that have been overcome in the construction of the railways through this mountainous country, he proceeds to give the following particulars as to the capabilities of the country :—

The most is made of irrigation, but in a very rude way, as in the Rimac valley, where tremendous crops of sugar-cane are raised. I am sorry I have no figures, but these could be easily obtained. I only know that the produce per acre from land where irrigation is carried out, such as the Chimbote and Rimac valleys, far surpasses that produced in the most favoured regions of any other part of the world. Here, I think, is a great opening for capitalists, a sugar estate here being a sure means of obtaining a very speedy return of very large profit. The climate is all that can be desired, being dry and warm, and so equable that one crop of cane after the other can be cut, so that the sugar-mills can be kept constantly running, not remaining idle for ten or eleven months in the year, as in the West Indies. In fact, there is no line to be drawn for the seasons, as you experience but one perpetual summer, so that a constant supply is always obtainable. This is carried on without the land requiring to be fertilised or to lay idle. This is due to the large quantities of nitrates in the soil. There are many large sugar estates in the north of Peru; one, that of Señor Dertiano, about ten miles inland from Chimbote, I visited. Here we were shown the greatest civility, and hospitality of a very high order, horses being placed at our disposal to visit the various parts of the estate; and although we were utter strangers to this gentleman, yet pressing invitations were given to the whole party to remain.

Maize is also grown in great quantities; it forms the chief food of the poor Indians (the Cholos), who are descendants of the old Peruvians. Another trip I made

from Mollendo to Puno, on the Lake of Titicaca, visiting Arequipa on the road.

"In speaking of the hospitality shown him in the south on ...asion of a visit to Lake Titicaca, he says:—Here, it ...sible, it surpassed that shown us in the north, a train ... placed at our disposal from Arequipa to Puno, horses ...e always waiting for us, and it was with difficulty that ... were allowed to pay our hotel bills; and this hospitality ...s from people we had never seen before, and most ...obably would never see again, and without a chance of in ...y way returning their kindness. I cannot pass by Lake ...iticaca without saying a word or two on the wonderful ...uantities of wild fowl here. Officers who had been in all ...arts of the world said they had never seen a hundredth ...art of the fowl we saw here; they literally rose in ...thousands upon thousands. Geese, swans, and ducks of all kinds were found here in the greatest profusion. It is the Paradise of the sportsman; the plains round about the lake teem with guanuco and vicuña. Here also is the home of the llama. A cross between the llama and the vicuña produces the fine valuable wool so much sought after by our manufacturers for weaving into a fine soft cloth. This animal flourishes here, and I have no doubt that the breeding of it would prove most lucrative. I know of no more promising field for mining adventure than Peru. When I was in Chicla I saw scores of llamas coming down the mountains with silver ore on their backs, and this obtained by the montaneros (Indians), with the most primitive tools. From the best authority I heard the most glowing accounts of the richness of the silver mines.

THE EXPLORATION AND COLONISATION SOCIETY OF THE AMAZON PROVINCES OF PERU.

Nomination of a Commission by the Prefect of Cajamarca. Translated from "El Callao," 22nd October, 1886.

OPENING OF A ROAD TO THE CAHUAPANAS.

The Prefect of the Department of Cajamarca, Señor Frederic Rios, being convinced that the progress of the country depends upon the quick realisation of a road which

CHICLA, PRESENT TERMINATION OF THE OROYA RAILROAD. *Face page* 81.

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will connect the capital of the Department of the Amazons with the navigable waters of the Cahuapanas, thus affording a short road to the Atlantic, and so receive the enlightened industrial population of the old world, has undertaken with enthusiasm and patriotism the duty of collecting funds in his Department in order to contribute to the execution of the respective works for that object.

To carry out his intention the Prefect has nominated a commission composed of Señor Luis F. Bustamante, who will be President, Señores Carlos Beckerel and D. Wenceslas Villacorta. These gentlemen will arrange the carrying out of this important work with Dr. José Arbaiza, who is the delegate in this Department of the Society.

Translated from "El Callao," 21st March, 1887.

LIST OF SUBSCRIPTIONS.

The Council of Delegates, in its last session, notified the receipt, from Dr. Albornoz, of the following amounts from the undermentioned delegates of the Society:—

From the delegate at Huamachuco	$46.50
,, Señor Manuel Pinillos Marten	40.00
,, the council of the Santiago de Chuco district.	6.00
,, Luis Enriquez	80
,, the delegate of the province of Moquegua ...	149.40
,, ,, ,, Arequipa	151.40
,, Provincial Council of Condesuyos.....	20.00
,, the Sub-Prefect of the same province	19.40
,, Provincial Council of Castilla.....	12.00
,, the delegate in the province of Cauta	525.00
,, the Sub-Prefect of same	200.00
,, the delegate of the Huanuco department	175.00
	$1,345.50
	(= £269. 2s.)

It was arranged that in the absence of Dr. Solar, Dr. Zurate, or in his absence Señor Elguesa, would preside at the regular meetings of the Society, and a vote of thanks was accorded to Dr. Albornoz for his efforts in promoting the objects of the Society.

APPOINTMENT OF THE AUTHOR AS DELEGATE MEMBER OF THE SOCIETY FOR THE EXPLORATION AND COLONISATION OF THE AMAZON PROVINCES OF PERU.

This eminent Society elected the author of this work as honorary member and its delegate in England, by a diploma dated Lima, 9th July, 1887.

The object of the Society has already been recorded, viz., that of preparing the Amazon regions of Peru for European colonisation, and so opening the same to the advantages of civilisation and Christianity, for which purpose the Society seeks the co-operation of capitalists and people of this great country in joining hands with it to carry out this noble work.

As an Englishman, and one who has during the period of sixteen years received repeated courtesies at the hands of the Government of Peru and its people, the author will gladly contribute his humble services towards this laudable and patriotic work, which he trusts will be a blessing to the two peoples, on the one hand by opening up the dark regions of Peru to civilisation, and on the other by giving means of employment to those in distress in Great Britain and Ireland.

At all times he will have pleasure in affording information upon the subject in his power to persons requiring the same, and offers his services as a medium between such persons and the Peruvian Society.

NECESSITY FOR ASSISTED EMIGRATION.

The urgency which exists in this country for assisted emigration is acknowledged by all Englishmen who desire their country's progress, and hold the welfare of their fellow-men at heart. A Society called the National Association of State-directed Colonisation has been formed, with the object of assisting intending emigrants. So far, no measures have been taken in that direction by the State, but it is evident that the legislature of this country is fully alive to the deep importance of the question, as is evi-

denced by the reply given by the Prime Minister to a deputation headed by Lord Brabazon at his official residence, on Feb. 24, 1887, when Lord Salisbury, in the course of his reply, said :—

"It is one of the most momentous subjects with which the present generation can deal. I feel intensely that if we go on as we are going now, and there is no *machinery* for leading out into less exhausted and less crowded portions of the world the vast population, we are only adding to our roll a terrible amount of misery, which must be discharged by this or the next succeeding generation. It is impossible to exaggerate the importance, taking it in a large sense, of the subject that you have brought before me."

Sir Theodore Martin, in a letter to Lord Brabazon upon this subject, writes :—

"It is one in which I have for many years felt the deepest interest, my conviction having long been, that the problem how to deal with our surplus population is one which, if not earnestly grappled with by the Government, as well as by individuals, will force itself upon our consideration in ways that cannot be contemplated without alarm. It is obvious that we have already more mouths to feed in England than can be fed out of the wages fund, which during the years of 'leaps and bounds' of prosperity was ample for the purpose. And these mouths are increasing yearly, with a rapidity that is simply appalling. Other countries, where the pressure of population is not so great (more far-seeing than our own), are, with the assistance of their Governments, pushing their commerce into regions where we formerly enjoyed almost a monopoly, and so narrowing day by day the resources of our own commerce. They, too, see the importance of obtaining possessions to which their own surplus population can be sent, and in time establishing markets for their home products, and so providing wages for their home populations. . . . . We have a vast population on our hands ready to work, but with no work for them, nor the means to transport themselves to the regions which are ours, and where all the industrious workers we can spare might in a very brief period establish themselves in comfort, and open invaluable markets for the products of our native industries."

HOW TO EFFECTUALLY COLONISE THE AMAZON REGIONS AND EASTERN SLOPES OF THE ANDES OF PERU.

It is the author's opinion that the first step to be taken to effect the colonisation of these rich and fertile regions is to form a Railroad Company, which would receive important concessions of land from the Peruvian Government, similar to what has been done in the Argentine Republic, and which has been attended with such magnificent results that the railroads in that country are now amongst the most remunerative of any in the world.

Experience has shown us that in all new countries the pioneer to colonisation, commerce, and civilisation, is the railroad. We have only to observe the immense flow of emigration which is daily taking place to the Argentine Republic, in consequence of the great lines of railroad which have been made there, and which are now being extended to the borders of Bolivia. Vast plains which were only very recently uninhabited deserts are now studded with flourishing towns, populated by Europeans.

The President of the Peruvian Exploration and Colonisation Society points out, in his report given in a previous chapter, the facility with which a line of railway may be constructed, and if the lines of railway in the Argentine Republic have proved so highly remunerative, surely it may be confidently expected that similar undertakings in these fertile regions would be attended with equally good results.

It is to be hoped that capitalists in this country will avail themselves of the opportunity to initiate this important work in one of the richest quarters of the globe, which will be the means of opening up a new and extensive field for English enterprise and colonisation.

CHAPTER VI.

Railroads.

THE following are the Government Railroads:—

Name of Railroad.	Length in English Miles.	Cost in £ Sterling.	Remarks.
Callao, Oroya and Cerro de Pasco	136	5,175,000	Finished to Chicla.
Mollendo and Arequipa	107	2,250,000	
Arequipa and Puno	218	6,000,000	
Puno, Juliaca, and Cuzco	82	4,500,000	
Ilo and Moquegua	63	1,256,250	
Pacasmayo, Guadalupe, Yonan, and Cajamarca	83	1,331,250	
Pisco and Ica	45	300,000	
Ancon and Chancay	45	60,000	
Lima to Huacho	89½	750,000	
Payta Piura	63	337,500	
Lima to Pisco	144	1,875,000	
Huacho to Saya	36	450,000	
Chimbote, Huaraz, and Recuay	172	4,500,000	
Salaverry to Trujillo and Ascope	40	600,000	
Total	1,323½	£29,385,000	

760 miles are furnished and equipped, and for the present it is proposed to construct the most important sections, such as Cerro de Pasco, part of Cuzco, and part of Chimbote railroads, in all about 240 miles. The Ilo road was destroyed, and the rails and rolling stock carried off by the Chilian forces.

PRIVATE RAILROADS.

	Miles.	Cost.
Cerro de Pasco (Mineral Railroad)	15	
Iquique to Noria	37	
Pisagua to Sal de Obispo	35	
Eten to Ferrenape	28	
	115	

RAILWAYS ALREADY WORKING (ENGLISH COMPANIES).

Arica to Tacna	39½	£1,125,000
Callao to Lima	9	
Lima to Chorillos	9	
	57½	

Professor Orton, speaking of the Railroads, says :— "Peru has just found out that this is an age of roads, and that if she would not fall too far behind in the race of nations she must have means of inter-communication. No other country has greater need of highways, for the two agricultural regions, the Interandean plateau and the eastern Transandean slope (Montaña) are separated by the Oriental Cordillera, and the mineral region is cut off from the agricultural by the coast range, while no navigable streams enter the Pacific. The Incas constructed some remarkable roads, chiefly longitudinal, one passing over the grand plateau from Quito to Cuzco; another along the coast. The latter is almost effaced by the shifting sands; a fragment, however, is still visible at Pacasmayo. The remains of the other bear evidence of their primitive grandeur, and have drawn forth the eulogium of Humboldt, that 'the roads of the Incas were among the most useful and stupendous works ever executed by man.' But these roads are now useless, and, even if repaired, would be unsuited to modern commerce. What Peru wants, and what she is trying to accomplish, is the introduction of a system of transverse railways, bringing her rich highland valleys in connexion with her ports, and a longitudinal line eclipsing the royal road of the Incas, which shall link all together, passing from Jaen through Cajamarca, Cerro de Pasco, and Cuzco, to the Lake Titicaca."

"The following railways are owned by private companies: Lima to Callao, eight to nine miles, finished. This is the oldest road in Peru, having been opened in 1851, and, like all the rest, it has but one track. Lima and Chorillos, the fashionable Long Branch of Peru, nine miles, finished. Eten and Lambeyeque, twenty-eight miles, finished, starting from an iron pier 4,000 feet long. Arica and Tacna, forty miles, finished. A continuation to La Paz is projected, to cost $32,000,000, to rise 14,000 feet; this would be the nearest outlet for Bolivia, but would have a rival in the Arequipa and Puno road. Iquique and Pisagua, 160 miles, half finished, designed only for the exportation of nitrate of soda. There are also short roads constructed at Pimentel, Trujillo to Ascope, Patillos, Eten, Lambeyeque, and from Magdalena to Lima. These lines represent $25,000,000."

"Peru has invested about $140,000,000 in railways—a gigantic sum for 3,000,000 of people; but guano is the exchequer. Of this amount she has paid nearly one-half, and 650 miles of track have been laid, or one-half the projected amount. It costs 50 per cent. more to build a railway in Peru than in the United States, for everything must be imported, and labour is expensive.[1] Among the minor roads owned by the Government are the Pisco and Yca, forty-five miles, finished, cost $1,500,000. Ancón, finished from Lima to Chancay, forty-five miles, cost about $300,000. Payta and Piura, sixty-three miles, a portion of which is still in construction, to cost $1,950,000."[2]

"But all the great iron roads of the Republic are the handiwork of Mr. Meiggs, the ablest representative of American enterprise south of the Equator. Mr. Meiggs has contracts with the Government amounting to $133,000,000 for building seven railways, with an aggregate length of about

[1] Ilo to Moquegua was carried away during the war, but is to be rebuilt shortly. The concession to build a railroad from Lima to Pisco (144 miles) was granted in February, 1887, while a short time ago an English firm was carrying on negotiations with the Government to build the same, besides a narrow gauge one from Pisco to Ayacucho.

[2] The mountainous nature of the country requires enormous engineering work, chiefly in cutting and tunnelling. Besides, the gradients are so steep that Peru possesses the highest and steepest railroads in the world.

LARGE CAST-IRON BRIDGE OF THE OROYA RAILWAY, AND THE OLD SUSPENSION BRIDGE OF VEGETABLE FIBRE. *Face p.* 88.

a thousand miles. Five of these are finished; three (the Puno, Oroya, and Pacasmayo), the longest and most difficult, being in process of construction at the same time."

"The gauge of the roads is 4 feet 8½ inches, save that of Chimbote, which is 3 feet. The rolling stock is American, the cars coming from Gilbert, Bush & Co., Troy, and locomotives (mostly Rogers's) from Paterson. A locomotive on the track costs $20,000, to $25,000, and a first-class car $5,500.[1] The ties are from Oregon, the rails from England, the diamond drills from America, worked by Rand & Waring's compressor; the stationary machinery from Leeds. The shops and depôts generally are made of English galvanised iron, the shovels are Ames's, and the iron water-tanks Pill's Patent. The engineers are invariably, I believe, English-speaking, and the labourers are Chinese, Cholos, and Chilians. The timber, iron, rolling stock, labour, fuel, and nearly all the food are imported."

"It will be a long time before the Government will realise anything directly from these railroads. The Chimbote, passing through a developed mining region, and the Ilo, draining the vineyards of Moquehua, will soon be self-supporting. But such a costly enterprise as the Oroya can do nothing but expend until it is extended to the Amazons; while as to the Arequipa, one is in doubt whether to wonder most at the skill of the engineers or the hardihood of the Government in ordering the gigantic undertaking; for it passes through an utterly profitless region—one village in one hundred miles—over sterile pampas and black paramos, without mines worth the working, without a sign of life, save now and then a condor, a few herds of Peruvian sheep, and scattered tufts of wiry grass, cacti, and *compositæ*. The great export from Southern Peru, alpaca, does not exceed 10,000 quintals a year. Surely, we say, the Government will not have a month's work for this road in a year. But so would we misjudge the Pacific Railroad, as it crosses the great desert. When the Oroya Railroad joins the Pichis river, and the Arequipa is connected with the heart of Bolivia, and thence

[1] The Government has been charged $30,000 for most of the locomotives.

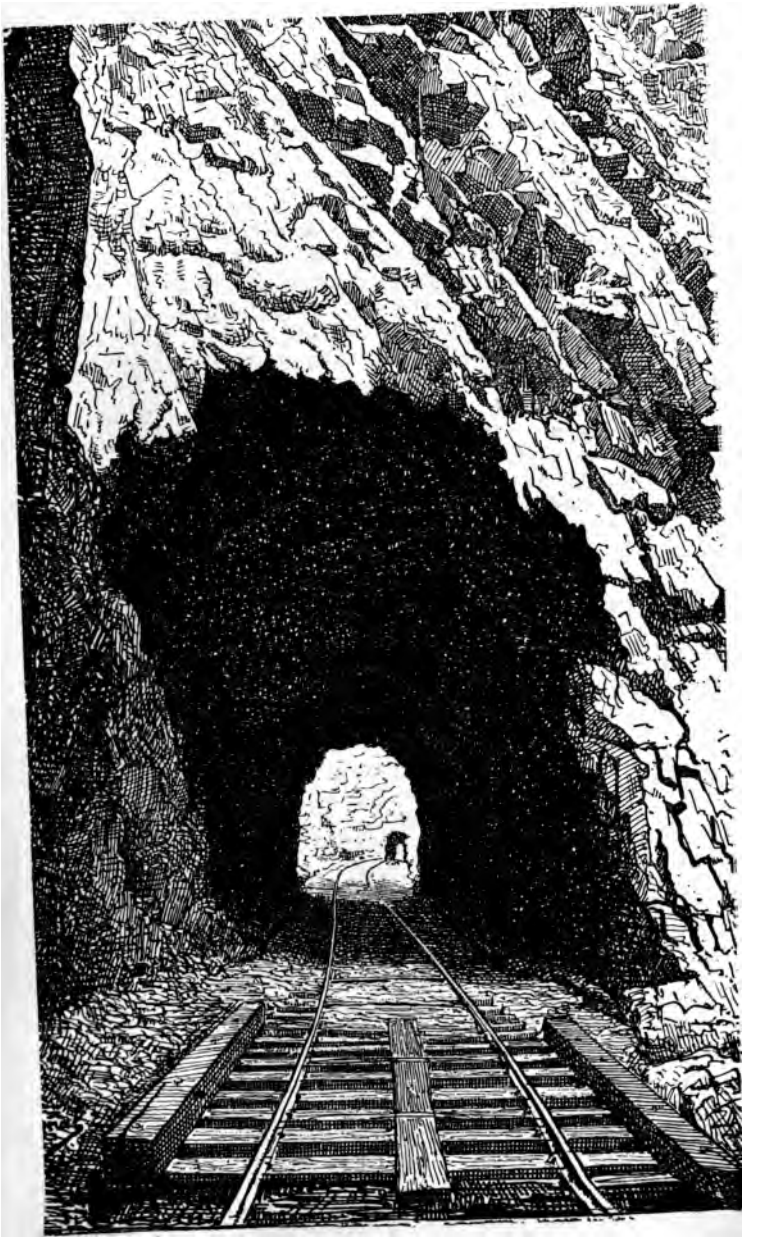
with the projected lines in the Argentine Confederation, we shall look for dividends. The railroads of Peru, as everywhere else, will develop new life in the people, and new sources of wealth in the country."

"But, letting Peru look after the proceeds, let us glance at these great enterprises as marvels of engineering, and as the creations of American genius."

"*The Pacasmayo Railroad*—situated in lat. 7° 30′ S. Termini—Pacasmayo and La Viña. Length, 172 miles, finished. Contract taken by Mr. Meiggs at $5,800,000 in cash. Starting with an iron mole half a mile long, it passes up the valley of Rio Jequetepeque (or "Hidden River") through the village of San Pedro, the capital of a rich agricultural region, having vast plantations of sugar-cane, rice, coffee, and corn; then over a desert, which, however, can be easily reclaimed by irrigation, and ends at an altitude of 4,000 feet, near the silver mines of Chilete. A branch leads to the busy village of Guadalupe. One can now go from the coast to Cajamarca in a short time."

"*The Chimbote Railroad*..—Situated in lat. 9°. Termini—Chimbote and Huaraz. Length, 172 miles, finished. Contract taken by Mr. Meiggs, at $24,000,000 in cash. It passes up the valley of the Santa, and then southerly along the highlands, and is designed to open up the rich mines of that region, and to benefit 200,000 inhabitants. It begins with a magnificent iron pier, and there are thirty tunnels on the route."

"*The Oroya Railroad.*—Situated in lat. 12°. Termini—Callao and Oroya. Length, 136 miles. Contract taken by Mr. Meiggs, at $27,600,000, in bonds at 79. This is one of the Nine Wonders in the Peruvian world, and certainly it is the greatest feat of railroad engineering in either hemisphere. As a specimen of American enterprise and American workmanship it suffers nothing by comparison. It was begun in 1870 and finished in 1876. Starting from the sea, it ascends the narrow valley of the once sacred Rimac, rising the first forty-six miles nearly 5,000 feet; then it threads the increasingly-intricate gorges of the Sierras (a winding, giddy pathway along the edge of precipices and over bridges that seem suspended in the air), tunnels the Andes at the altitude of 15,645 feet—the most



TUNNEL ON THE OROYA RAILWAY.

Face P

elevated spot in the world where a piston-rod is moved by steam—and ends at Oroya, 12,178 feet above the Pacific. The wonder is doubled by remembering that this great elevation is reached in seventy-eight miles. Between the coast and the summit there is not an inch of down-grade. The difficulties encountered in its construction are without a parallel. The valley narrows to a ravine, and then to a gorge, till the closing in fairly overhangs the infant Rimac; in fact, at one point a stone dropped will fall on the opposite side of the stream. So that, in forcing the railway up the Cordilleras, the engineers have literally threaded the mountains by a series of sixty-three tunnels, whose aggregate length is 21,000 feet. The great tunnel of Galera, by which the locomotive is to be taken over the Andes, will be 3,800 feet long. Besides boring the flinty rock, and making enormous bridges, cuts, and fills, the workmen (of whom 8,000 have been engaged at one time) have had to contend against land-slides, falling boulders, sorroche (or the difficulty of breathing at high altitudes), the extremes of climate, pestilential diseases, such as fevers and verrugas, and accidents by falling from the rocks and in blasting. Over 7,000 have died or been killed in the construction of this road. The bridges and crossings number over thirty. All are of iron or stone. Some are of French and English manufacture, but the best are American. Of these the Verrugas bridge is the most remarkable structure of its kind in the world. It spans a chasm 580 feet wide, and rests on three piers. The base of the middle pier is 50 feet square, and its height is 252 feet. The deflection is only five-eighths of an inch. It was made at Phœnixville, Pa., of hollow wrought-iron columns, and cost in New York $63,000. This triumph of American ingenuity is the great attraction in Peru, and is the wonder and praise of all visitors. The maximum grade of this road is 4 per cent., the sharpest curve 395 feet radius, and the average consumption of coal sixty-five pounds per mile. Mules and gunpowder are indispensable in advance of the locomotive, and together make quite an item; $115,000 are invested in the quadruple means of transportation, and 500,000 pounds of powder are used monthly for blasting. My fearfully grand ride down the Andes on a hand-car drawn by gravity, under

the superintendence of Mr. Cilley, will never fade from my memory. To fly along the edge of a precipice at the rate of forty-five miles an hour, and whip round a curve till every hair of the head stands on an end, is glorious—when over. Once is enough for a lifetime. Oroya, the terminus, is only a point of divergence.[1] In time, branches will run to silvery Cerro de Pasco, to Tarma, destined to be the Mecca of consumptives, and to Fort San Ramon or to Mairo, the head of navigation on the Amazons. This will probably be the first inter-oceanic road in South America, as the link necessary to connect it with the great river is very short. It will also serve to colonise and civilise the mountain regions of Peru."

"*The Arequipa Railroad.*—Situated in lat. 17°. Termini —Mollendo and Arequipa. Length, 107 miles, finished. Contract taken by Mr. Meiggs, at $12,000,000 cash. Commenced in 1868, completed in 1870."

"*The Puno Railroad.*—Situated in lat. 16° 30′. Termini —Arequipa and Puno, on the west shore of Lake Titicaca.[2] Length, 218 miles, finished. Contract taken by Mr. Meiggs, at $32,000,000, in bonds at 79. Commenced July, 1870, completed June, 1874. These two roads—the Arequipa and Puno—are practically one (for it is a continuous line), and may be treated together. At present this is the longest railway south of the Equator, unless the Rosario and Cordova railroad be a rival. It is the most lofty and most serpentine railway in operation anywhere, and no other road in the world can show so much heavy work done. On the first division 7,000,000 cubic yards were removed. The deepest cut is 90 feet, the highest fill 112 feet; powder used, 27,000 quintals. On the second division the total amount of excavation was 9,858,000 cubic yards, the deepest cut being 127 feet (260,000 yards), the highest fill 141 feet; powder used, 15,500 quintals.

[1] A contract has been signed since 1885 to finish this road beyond Oroya to Cerro de Pasco, the most wealthy silver mine in South America after Potosi.

[2] The Lake Titicaca is 13,000 feet above the level of the sea, the highest navigation in the world, and it has a depth of sixty fathoms of water. The Peruvian Government have steamers plying between Puno and the Bolivian ports on the other side of the lake conveying passengers and merchandise.

There is but one short tunnel in the 325 miles, although the first survey of the Arequipa division alone demanded nineteen. There are only four bridges, all American, the longest being 1,690 feet. The engines on the Arequipa division have 18-inch cylinders; on the Puno 17-inch. They consume one ton of coal (costing $30) every thirty-four miles, and the shoes of the brakes are replaced for every round trip. The maximum grade is 4 per cent., and the maximum freight is sixty tons. The road crosses the high Andes at an altitude of 14,660 feet 116 miles east of Arequipa, where there is a cut of only 6·07 feet. When the track was laid beyond this summit, in 1873, it was the first time in history that a locomotive crossed the Andes. The Oroya railroad excels this in difficulty of work, in amount of excavation, as also, perhaps, in the sufferings of the men arising from want of food and fuel, and the prevalence of rain, snow, cold, and rarefied air. On both there was trouble in cooking certain articles of food, as beans for example, for the water boiled before it was fairly hot, so that the men were obliged to use closed cans to cook, under pressure. But there is this gain with the locomotives—the steam is generated and acts more freely at high altitudes, and less fuel is needed. A telegraph line follows each of these railroads. To supply Mollendo with water, a pipe has just been laid alongside of the track, eighty-five miles in length, the longest iron aqueduct in the world. It starts near Arequipa, at the elevation of 7,000 feet, and crosses the great desert of Islay. It is an 8-inch pipe, and discharges 433,000 gallons in twenty-four hours. It cost $20,000 per mile. This magnificent highway across the Andes will be a dead loss to Peru unless extended, as it passes through the most useless region in the world; and Puno is but a huddle of 5,000 shivering Indians. A railroad from Puno to La Paz could be built for $10,000,000. But one important tributary is already in course of construction."

"*The Cuzco Railroad.*—This first longitudinal road along the Peruvian Andes is to connect the city of Cuzco with the Arequipa railroad at Juliaca, near Puno. Length, 210 miles; graded contract, taken by Mr. Meiggs, at $25,000,000 cash. The highest point, 14,150 feet, is about

100 miles north of Juliaca; thence, for 90 miles, the track falls to 10,000 feet, following an affluent of the Ucayali, and then rises to Cuzco, which is 11,500 feet. It passes mainly through sandstone and limestone, but there is no tunneling. The total amount of excavation was 5,500,000 cubic yards. But the freight on the material for this road would be sufficient to build it in the United States. The productions for exportation are—cacao, coffee, wool, cotton, sugar, cascarilla, and woods."

"*The Moquegua Railroad.*—Situated in lat. 17° 30'. Termini—Ilo and Moquegua. Length, 63 miles, finished. Contract, taken by Mr. Meiggs, at $6,700,000 in bonds at 75. It passes through one of the richest wine-producing districts in Peru."

CHAPTER VII.

The Sierra or Mountain Districts.

CONDITION OF THE PROVINCE OF JUNIN (CENTRAL PERU).

The following is an extract translated from a Report of the Prefect, SEÑOR PATRON, *dated 29th May,* 1886. *From "El Peruano."*

THE MINING INDUSTRY AT CERRO DE PASCO.

THE Prefect reports:—"The mining industry of this Department has commenced to revive. The rich mines at Cerro de Pasco, the gigantic resources of which seemed to have been expended, are again worked with considerable activity. Formerly, the annual product of these mines amounted to $8,000,000, or £1,600,000. During the past months, its production, notwithstanding the difficulty of procuring labour and the wet season, has increased very considerably. However, as long as there is no change made in the system of mining from the ancient and primitive style to that which modern science teaches to be the best, the mines will be incapable of showing a real national wealth. The Government and Congress should take care that this is done. From its realisation, this colossal mine would open quickly its inexhaustible and rich veins, spreading throughout Peru the fabulous riches it contains; and in order that such a happy state of things may be realised it is necessary that the great work of the Transandean Oroya railway be brought to a speedy termination. Important works are being carried

on at the famous Yauli mines. An experienced engineer is directing them who is sanguine of the most brilliant results. Yauli, in its granite rocks, holds out another future source of wealth to the country; and is within thirty miles of the present terminus of the Callao and Oroya Railway. A large staff of scientific American engineers have lately been engaged by an American syndicate of capitalists, surveying at the Cerro de Pasco Mines. Their report is not yet issued, but it is known to be highly favourable."

AGRICULTURAL INDUSTRY IN THE JUNIN DEPARTMENT.

"Providence has dispensed to the Department some compensation for its long sufferings caused by the war. The crops this year are superior to those of the last seven years, and offer abundant grain of all kinds. The various grasses which cover the country, fertilised by the abundant and extraordinary rains, supply our flocks of sheep, vicuña, and llama with a rich and varied sustenance. The entirely primitive style in which our agriculture is carried on cannot produce those benefits that it is capable of producing. We have now a scientific agriculturist, who will introduce the most useful crops to be cultivated, which will stimulate our rude peasants, and teach them the advantages to be derived from being led by what science teaches, compared with the rude system they adopt."

ROADMAKING IN THE FORESTS.

"If the mining industry offers an immediate and rich future to Peru, how much greater and surer do the rich, fertile regions of the Amazon offer with infinitely greater resources? In the vicinity of Tarma sixteen leagues of the forest country are already populated and traversed by a horse-road, offering a safe and convenient road for travellers and produce. Another fifteen leagues of road have to be made in order to reach localities on the rivers from which there are convenient ports of departure for steamers. In six days a person can make a journey from the shores of the Pacific Ocean to the beautiful regions of the Mairo, Pichis, and Palcazu."

MANUFACTURES.

In the provinces of Jauja and Huancayo, there has always been noticed an inclination to engage in manufacturing pursuits. This industry has suffered natural paralysation in the last few years, but it is to be hoped, tranquillity being restored, it will again take that importance it formerly occupied. In the provinces of Tarma there is a small town, Cacas, which is almost exclusively dedicated to the making of woollen cloths, in which it enjoys a profitable occupation.

CERRO DE LA SAL (HILL OF SALT).

It would be indisputably convenient to occupy this important place, the key by which we will easily be able to open the road that will give us a wide and free passage to the beautiful Amazon regions.

Numerous tribes of Chunchos meet and occupy the Cerro de la Sal to take away this indispensable article of necessity, and the importance of occupying it may be well understood to give us the power of entering into friendly relations with them. Thus we shall meet with powerful help to crown the very important and grand work,—to reach the navigable rivers by means of a horse-road traversing rich and valuable valleys.

CAJAMARCA.

Cajamarca[1] is about seventy miles from Chachapoyas. Its present population is 8,000. It stands 9,400 feet above the level of the sea, and the temperature ranges from 40° to 72°. The province yields annually 7,000,000 pounds of wool, 160,000 head of sheep, 100,000 head of cattle, and 50,000 horses. The hot springs (Los banos del Inca) are renowned for baths, and pigs are scalded at 162°. The enormous riches of this region are matters of history. Cajamarca is famous for Pizarro's great battle with the Inca king, in the days of the conquest of Peru. It was then known for its famous

[1] See Mr. Jean Nötzli's Report, page 75.

mineral springs. We are told the weight of gold found at the baths and accounted for was 15,000 ounces, besides the gold goblets, seats covered with gold, and the presents of gold to Pizarro's brothers. It was at Cajamarca the Inca king collected gold and silver to pay his ransom. He engaged to fill with gold the apartment in which he was kept prisoner, which was twenty-two feet long, seventeen feet wide, and was to be filled as high as nine feet from the floor. He further agreed to fill an adjoining room of smaller dimensions twice full of silver. The total amount of gold collected at Cajamarca by the Inca king amounted in value of money at the present time to *three and a half million pounds sterling*. The quantity of silver is estimated at 51,610 marks (309,660 ounces). There being no iron at hand, nothing but gold and silver, Pizarro caused the horses of the whole troop to be shod with silver.

THE QUEBRADA OF TAMBOPATA IN THE PROVINCE OF CARABAYA.

The illustrious English traveller, Mr. Clements R. Markham, undertook in the year 1858 a journey to the interior of Peru, when he visited the city of Cuzco, almost with the exclusive object of making ethnological studies on the remains of the ancient civilisation of the Incas. He likewise made an excursion to the great river Madre de Dios (Mother of God), which waters the fertile valleys of Paucartambo, with the object of knowing the famous Amarumayo, by whose waters the great expedition descended with the Inca Yupangui sent at the conquest of the Mojos. In the interesting work he published in London in 1856, he devoted a chapter to the Hydrographical Transandean Region of Peru, which in the country is known under the name of Montaña. In this work he gives an excellent historical and geographical *resumé* of the rivers Amazon, Huallaga, Ucayali, Madeira, and Purus. From a geographical point of view, the most important journey of Mr. Markham is that which he made in 1866 in the province of Carabaya, with the object of collecting seeds and plants of different

species of the cascarilla plant, in order to introduce its cultivation into India. He selected as a field for his work the Quebrada of Tambopata, which he traversed in different directions, carrying out his important mission with the greatest zeal and intelligence. This illustrious traveller published in London the account of his journey in Peru, containing interesting data respecting the province of Carabaya, and more particularly the Quebrada of Tambopata. To the intelligent work of Mr. Markham, England owes in a great measure the fortunate result attending the introduction and acclimatisation in India of the cascarilla plant.

VEGETABLE AND OTHER PRODUCTS OF THE SIERRA AND COAST.

Cotton.—Cotton of various qualities is raised in Peru. In the north of the Republic the country cotton, a biennial, is produced; towards the south, a cotton of a finer fibre is obtained; and lately the "Amazonian," which commands a high price in the market, has been introduced. A beautiful silk-like cotton is grown in the valley of Santa Ana. The indigenous cotton is readily bought up by manufacturers in England, the fibre being long and coarse; the finer qualities are also sought after to mix with wool. The cotton exported is grown on the confluence of rivers, and by irrigation on the west coast of the country. In the interior, wild cotton-trees are found 20 feet in height, the branches breaking down with their white load of the finest staple quality. In 1873, 81,441 bales were imported into England at Liverpool. The principal ports from which cotton is exported are, Pacasmayo, Payta, Eten, Chancay, and especially Pisco (grown in the rich valley of Ica). Flax is also found in Peru, but is valued by the Indians principally for its seeds, of which they make a kind of beer called chicha, while the stem, the most useful part of the plant, is left to perish.

Wine.—The richest wine-producing districts are in the provinces of Chicha, Ica, and Moquegua, the Bordeaux of Peru. The value of the vineyards in the province has been estimated at £3,000,000, and that of its annual pro-

duce in wine and aguardiente at £200,000. Next to Moquegua in the Department of Ica, which also produces wine on a large scale, a large amount of rum and wine is exported from Pisco. "Italia" is the name of the leading brandy. Oranges, lemons, melons, and olives are grown along the southern coast. The olives of Ilo and the raisins of Pica will compare with those of Seville and Malaga.

Wool.—After sugar, alpaca and vicuña wool is the principal export. The annual product is about 60,000 bales. It comes almost entirely from the Departments of Cuzco and Puno, the ports of shipment being Pisco, Islay, Mollendo, and Arica. But Arequipa is the great centre of the alpaca trade. Such is the reputation of the Arequipa brand that the wool is generally taken to that city to be re-assorted and re-packed. The alpaca sheep thrive best in the bleak, almost barren, boggy lands, from 13,000 to 14,000 feet above the sea. Shearing time begins about the middle of December, each sheep being sheared only once in two or three years. A fleece of three years is, of course, the largest, and commands the best price. It is now worth in Arequipa $70 a quintal. Vicuña wool brings $100 a quintal, but little is exported. About 4,000 goat-skins are exported annually from Payta to the United States, and a few chinchilla skins from Arica.

Silk.—Peru is admirably adapted for the cultivation of the mulberry and castor-oil plant, and the two species of silkworm which feed upon them. Three, four, and even five crops of eggs could be produced annually.

Many of the following particulars relative to the products and fruits of Peru have been translated, with corrections and additions, from the work of Dr. J. J. Von Tschudi:—

Cotton is cultivated only in a few plantations in the immediate vicinity of Lima, but it abounds more in the northern districts, particularly in the Department de la Libertad, the coast province of Piura, in Lambeyeque, and in Truxillo. In the southern province, Ica, a considerable quantity is also reared for exportation. The brown cotton was chiefly cultivated in the time of the Incas. Most of the bodies found in the ancient graves on the coast are enveloped in this kind of cotton.

The *Sugar-cane* is cultivated with success in all plantations where there is sufficient moisture of soil; and of all the agricultural products of this country it yields the greatest profit. The sugar estates lie on the sea coast, or along the banks of the rivers. The vertical limit of the sugar-cane growth is on the western declivity of the Cordilleras, about 4,500 feet above the level of the sea. The largest plantations, however, do not rise above 1,300 feet above the level of the sea, while those of the same extent on the eastern declivity are at the height of 6,000 feet. Within the last forty years the introduction of the Otaheitian cane has greatly improved the Peruvian plantations in quality, and has more especially increased the quantity of their produce; for the Otaheitian canes are found to yield proportionately one-third more than the West Indian canes which were previously cultivated. The preparation of the sugar is, as yet, conducted in a very rude and laborious manner. In most of the plantations the cane is passed through wooden presses, with brass rollers. These machines are called *trapiches* or *ingenios*. They are kept in motion by oxen or mules. In some large estates water-power is employed, but in many districts the steam-engine has been put up, which does the work effectually and quickly. A part of the sugar-cane juice is used for making the liquor called *guarapo*, or distilled for making rum. The remainder is boiled down into a syrup, or further heated until it thickens into cakes, called *chancacas*, or brown sugar. After a careful purification it is made into white cakes, or prepared as white sugar. In fineness of grain and purity of colour, it may perhaps be inferior to Cuban sugar, but it certainly exceeds it in sweetness and flavour. The consumption of sugar in the country is great, and its export is considerable. A table showing the importations of Peruvian sugar to Great Britain, from the commencement of its export from Peru down to the present time, is annexed to this pamphlet.

Maize.—Of the different kinds of grain, maize is most generally and most successfully cultivated in Peru. It grows on the sandy shore, in the fertile mountain valley, and on the margin of the forest, where the warmth is great. There are several varieties of maize, which are distinguished from one

another by the size of the head, and by the shape and appearrance of the grain. The most common kinds on the coast are —first, the *Maiz morocho*, which has small bright yellow or reddish-brown grains; second, the *Maiz amarillo*, of which the grain is large, heart-shaped, solid, and opaque; third, *Maiz amarillo de Chancay*, similar to the *Maiz amarillo*, but with a semi-transparent, square-shaped grain, and an elongated head. The morocho and amarillo maize are chiefly planted on the eastern declivity of the Andes. They run up stalks eight or nine feet high, and have enormously large heads. Maize forms the bread of the Indians of the mountains as well as of the coast. Like the potato of Europe, it is cooked in a variety of ways. Two of the most simple preparations of maize are those called *choclas* and *mote*. Choclas is the unripe maize-heads merely soaked in warm water; they form a very agreeable and wholesome article of food. Mote consists of ripe maize, first boiled, and then laid in hot ashes, after which the husks are easily stripped.

In the market in Lima, and in the large towns on the coast of Peru, there is an abundant supply of all kinds of vegetables, fruits, and flowers, all the year round

Potatoes are planted on the coast, their quality being very good, but they are subjected to frosts, which frequently spoil them, and for this reason Peruvians depend principally on the crops of the hilly districts. On the higher ridges, which intersect the coast at short distances from the sea, the potato grows wild. I am inclined to believe that the root is indigenous in these parts, as well as in Chiloe and Chilé, and that the ancient Peruvians did not obtain this root from the south, but that they removed it from their own high lands, to cultivate it on more favourable soil. The best potatoes grow about twenty-two leagues from Lima, in Huamantanga, which is about 7,000 feet above the level of the sea, to the north-west of the Quebrada of Canta. This potato is small and round, with a thin white skin, and, when bisected, the colour is a clear bright yellow. It is called *Papa amarilla* (yellow potato), and there is a great demand for it in the market, where it fetches a good price. The other potatoes come chiefly from the Quebrada of Huarochirin, and they are very well flavoured.

The *Camotes* (*Convolvulus batatas*, L.), not improperly called sweet potatoes, grow to a considerable size. There are two kinds of camotes, the yellow and the violet; the latter are called *camotes moradas*. These two kinds are much liked for their excellent flavour. They cease to grow beyond the height of 3,500 feet above the level of the sea.

The *Aracacha* (*Conium moschatum*, H.B. Kth.) grows on the coast, but it is more abundant on the projecting ridges of the Cordilleras, and on the eastern declivity of the Andes. It is a very agreeable and nutritive kind of tuberous vegetable, in flavour not unlike celery. It is cooked by being either simply boiled in water, or made into a kind of soup. In many districts the aracacha yields two crops in the year.

The *Yucca* (*Jatropha manihot*), is one of the finest vegetables of Peru. The stalk of the plant is between five and six feet high, and about the thickness of a finger. The roots are from one to two feet long, somewhat of the turnip form. Internally, they are pure white; but the external stem is tough, somewhat elastic, and of a reddish-brown colour. The roots are the edible parts of the plant. They are very agreeable in taste and easy of digestion. When raw they are hard and tough, and their taste somewhat resembles chestnuts. When boiled in water the root separates into fibres, and is rather waxy, but when laid in hot ashes it becomes mealy. In some parts of Peru the Indians prepare a very fine flour from the yucca, and it is used for making fine kinds of bread, and especially a kind of biscuit called *biscochuelos*. The yucca roots are not good after they have been more than three days out of the earth, and even during that time they must be placed in water, otherwise green or black stripes appear on them, which in the cooking assume a pale red colour. Their taste is then disagreeable, and they quickly become rotten. To propagate the yucca, the stalk is cut, particularly under the thick part, into sprouting pieces, which are stuck obliquely into the earth. In five or six months the roots are fit for use, but they are usually allowed to remain some time longer in the earth. They then put forth new leaves and flowers, and after sixteen or eighteen months they become slightly woody. The Indians on the Montaña de Vitoc sent as a present to their officiating priest a yucca

which weighed thirty pounds, but yet was very tender. On the western declivity of the Cordillera, the boundary elevation for the growth of the yucca is about 3,000 feet above the level of the sea.

Pulse Crops.—Amongst the pulse there are different kinds of peas (*garbanzos*) on the coast; beans (*frijoles*), on the contrary, occupy the hilly grounds. All vegetables of the cabbage and salad kinds cultivated in Europe will grow in Peru. The climate, both of the coast and the hills, suits them perfectly. Numerous varieties of the genus *Cucurbita* are cultivated in the *chacras*, or Indian villages, on the coast. They are chiefly consumed by the coloured population. I did not find them very agreeable to the taste. They are all sweetish and fibrous.

Tomato, Aji, and Capsicum.—Among the edible plants which serve for seasoning or spicing, I must mention the love-apple (*Tomato*), which thrives well in all the warm districts of Peru; and the Spanish pepper (*Aji*), which is found only on the coast and in the wild woody regions. There are many species of the pepper (*Capsicum annum, baccatum, frutescens*, &c.), which are sometimes eaten green and sometimes dried and pounded. In Peru the consumption of aji is greater than that of salt; for with two-thirds of the dishes brought to table, more of the former than of the latter is used.

It is worthy of remark that salt diminishes in a very striking degree the pungency of the aji; and it is still more remarkable that the use of the latter, which in a manner may be called a superfluity, has no effect on the digestive organs. If two pods of aji, steeped in vinegar, are laid as a sinapism on the skin, in the space of a quarter of an hour the part becomes red, and the pain intolerable; within an hour the scarf-skin will be removed.

Lucerne (*Medicago sativa*) called by the natives alfalfa, is reared in great abundance throughout the whole of Peru as fodder for cattle. It does not bear great humidity, nor severe heat or cold; yet its elevation boundary is about 11,100 feet above the level of the sea. On the coast it flourishes very luxuriantly during the misty season, but during the months of February and March it is almost entirely dried up.

The *Maisillo* (*Paspalum purpureum*, R.) then supplies its place as fodder for cattle. In the mountainous districts it is also most abundant during the humid season; but as soon as the frost sets in it decays, takes a rusty brown colour, and remains in a bad state until the beginning of the rainy season. On an average the alfalfa may be cut four times in the year, but in high-lying districts only three times; and in humid soils on the coast, particularly in the neighbourhood of rivers, five times. Once in every four or five years the clover fields are broken up by the plough, and then sown with maize or barley. In the sixth year clover is again raised.

The *Olive-tree* is cultivated chiefly in the southern provinces of the coast. In flavour its fruit approximates to the Spanish olive. That the oil is not so fine is probably owing to the bad presses which are used, and the rude manner in which the operation is performed. The olives (*Aceitunas*) are preserved in a peculiar manner. They are allowed to ripen on the tree, when they are gathered, slightly pressed, dried, and put up in small earthen vessels. By this process they become shrivelled and quite black. When served up at table, pieces of tomato and aji are laid on them; the latter is an excellent accompaniment to the oily fruit. Some preserve them in salt water, by which means they remain plump and green.

The *Castor-oil plant* (*Ricinus communis*) grows wild, but it is also cultivated in many plantations. The considerable quantity of oil which is pressed out of the seeds is used unpurified in Lima for the street lamps, and also in the sugar plantations for greasing the machines employed on the works.

The *Piñoncillo-tree* (*Castiglionia lobata*) is cultivated only about Surco, Huacho, and Lambayeque, in some of the Indian chacras; but it grows wild in considerable abundance. Its bean-like fruit, when roasted, has an agreeable flavour. When eaten raw, the ethereal oil generated between the kernel and the epidermis is a strong aperient, and its effect can only be counteracted by drinking water. When an incision is made in the stem, a clear bright liquid flows out; but after some time it becomes black and horny-like. It is a very powerful caustic, and retains its extraordinary property for years.

Vast quantities of *Apricots* (called duraznos) grow in the mountain valleys. Of fifteen kinds which came under my observation, those called *blanquillos* and *abridores* are distinguished for fine flavour.

Generally speaking, the interior of the country is well suited to all the fruits and grain of central Europe; and doubtless many of our forest trees would flourish on those Peruvian hills which now present no traces of vegetation. All the fruits of southern Europe thrive luxuriantly in the warm regions of Peru.

Oranges, *Pomegranates*, *Lemons*, *Limes*, &c., grow in incredible abundance. Though the trees bloom and bear fruit the whole year round, yet there are particular times in which their produce is in the greatest perfection and abundance. On the coast, for example, at the commencement of winter, and in the woody districts in the months of February and March, melons and sandias (*water melons*) are particularly fine.

The *Figs* are of two kinds; the one called *higos* and the other *brevas*. In the former, the pulp is red; in the latter, it is white. They are usually large, very soft, and may be ranked among the most delicious fruits of the country. Fig-trees grow frequently wild in the neighbourhood of the plantations and the chacras, and the traveller may pluck the fruit, and carry away a supply for his journey; for beyond a certain distance from Lima figs are not gathered, being a fruit not easy of transport in its fresh state, and when dried it is not liked. *Pomegranates* and *Quinces* seldom grow on the coast. They are chiefly brought to the Lima market from the neighbouring Quebradas. The *Mulberry-tree* flourishes luxuriantly, and without cultivation, but its fruit is not thought worth gathering, and it is left as food for the birds. In the southern province of Ica, the cultivation of the *Vine* has been attended by most successful results. In the neighbourhood of Lima grapes are seen only in a few huertas (orchards); but for size, sweetness, and aromatic flavour, there are no such grapes in any other part of the world.

The Chirimoya.—Of tropical fruits the number is not so great in Peru as in the more northerly district of Guayaquil, but there are some Peruvian fruits the delicious flavour of

which cannot be excelled. One of these is the chirimoya (*Anona tripetala.*) Hanke, in one of his letters, calls it "a master-work of nature." It would certainly be difficult to name any fruit possessing a more exquisite flavour. In Lima this delicious fruit is grown to the size of above two-thirds of a pine-apple. In Huanuco, its indigenous soil, it grows in the greatest perfection, and often attains the weight of sixteen pounds or upwards. The fruit is of roundish form, sometimes pyramidal or heart-shaped, the broad base uniting with the stem. Externally it is green, covered with small knobs and scales, and often has black markings, like net-work, spread over it. When the fruit is very ripe it has black spots. The skin is rather thick and tough. Internally the fruit is snow-white and juicy, and provided with a number of small seeds well-covered with a delicate substance. The chirimoyas of Huanuco are also distinguished from those of the coast by having only from four to six seeds, whereas on the coast they are found with from twenty-five to thirty. The question as to what the taste of this fruit may be compared with I can only answer by saying that it is incomparable. Both the fruit and flowers of the chirimoya emit a fine fragrance, which, when the tree is covered with blossom, is so strong as to be almost overpowering. The tree which bears this finest of all fruits is from fifteen to twenty feet high. It has a broad, flat top, and is of a pale green colour.

The *Palta* (*Persea gratissima*) is a fruit of the pear form, and dark brown in colour. The rind is tough and elastic, but not very thick. The edible substance, which is soft and green, encloses a kernel resembling a chestnut in form and colour. This fruit is very astringent and bitter, and on being cut a juice flows from it which is at first yellow, but soon turns black. The taste is peculiar, and at first not agreeable to a foreigner, but it is generally much liked when the palate becomes accustomed to it. The fruit of the palta dissolves, like butter, on the tongue, and hence it is called, in some of the French colonies, *Beurre végétale.* It is sometimes eaten without any accompaniment, and sometimes with a little salt, or with oil and vinegar. The kernels make a very good brandy. The palta-tree is slender and very high, with a small dome-like

top. On the eastern declivity of the Andes these trees can be seen more than sixty feet high.

Bananas (*platanos*) thrive well in parts where there is heat and humidity; there are many varieties. The platanos belong indisputably to the most useful class of fruit-trees, especially in regions where they can be cultivated extensively, for then they may very adequately supply the place of bread. In northern Peru and Guayaquil the platanos fruit is prepared for food in a variety of ways.

Pine-apples (*ananas*) are not much cultivated on the coast of Peru, but in the Amazon provinces and in the Montaña de Vitoc; but owing to the lengthy transport from the latter place, and the quicker communication by steam navigation along the coast, the Lima market is chiefly supplied from Ecuador.

The *Granadilla* (*Passiflora quadrangularis*) is about the size of an apple, but rather oblong. The skin is reddish-yellow, hard, and rather thick. The edible part is grey and gelatinous, and it contains numerous dark-coloured seeds. The fruit is very agreeable, and in taste resembles the gooseberry, and is very cooling. The granadilla is a shrub or bush, and it twines round the trunks of trees or climbs the walls of the ranchos. It is less abundant on the coast than in the adjacent valleys.

The *Tunas* are fruits of different species of cactus. The husk, which is covered with sharp prickles, is green, yellow, or red in colour, and is easily separated from the pulp of the fruit. When being plucked the tunas are rubbed with straw to remove the prickles, which, however, is not always completely accomplished. It is therefore necessary to be cautious in handling the husks, for the small prickles cause inflammation when they get into the fingers.

The *Pacay* is the fruit of a tree of rather large size (*Prosopis dulcis*), with a rather low and broad top. It consists of a pod from 20 to 24 inches long, enclosing black seeds, which are embedded in a white, soft, flaky substance. This flaky part is as white as snow, and is the only eatable part of the fruit. It tastes sweet, and, to my palate at least, it is very unpleasant; however, the Limeños on the coast and the monkeys in the woods are fond of pacay.

The *Lucuma* is produced along the whole coast of Peru. The fruit is round. The grey-brown husk encloses a fibrous, dry, yellow-coloured fruit, with its kernel. It is a very delicious fruit, and makes excellent ice-cream.

The *Guayava* (*Psidium pomiferum*) grows on a low shrub, chiefly in the valleys of the coast, and on the eastern declivity of the Andes. It is of the form and size of a small apple. The rind is bright yellow, and thin. The pulp is either white or red, and is full of little egg-shaped granulations. Its flavour is pleasant, but not remarkably fine. In Lima it is not a favourite, for numerous insects lay their eggs in it, and when the fruit is ripe larvæ are found in it.

The *Pepino* (a *Cucurbitacea*) is grown in great abundance in the fields. The plant is only a foot and a half high, and creeps on the ground. The fruit is from four to five inches long, cylindrical, and at both ends somewhat pointed. The husk is of a yellowish-green colour, with long rose-coloured stripes. The pulp or edible part is solid, juicy, and well-flavoured. The kernel lies in the middle, in a long-shaped furrow. By the natives the pepino is, not altogether unreasonably, believed to be injurious. They maintain that this fruit is too cold in the stomach, and that a glass of brandy is necessary to counteract its injurious properties. This much is certain, that the pepinos are very indigestible, and that eating them frequently, or at improper times, brings on fits of illness.

The *Mani*, or earth-almond (*Arachis hypogœa*), is produced in the northern provinces. The plant is from a foot and a half to two feet long, and very leafy. The kernels have a grey, shrivelled husk; they are white, and contain much oil. When roasted and crushed, they are eaten with sugar.

The *Capulies* (*Prunus capulin*) grow in the open fields. In the towns they are planted in gardens or in pots. The fruit is a little larger than a cherry. It is of a deep yellow colour, and has an acid taste. The capulies are not frequently eaten. On account of their very pleasant odour, they are used in making *pucheros de flores*, or, with other odoriferous flowers, they are besprinkled with *Agua rica*, and laid in drawers to perfume linen. The ladies of Lima

[illegible] The same uses are made of [illegible] R. which grow on [illegible] The bright yellow fruit is [illegible] The pulp emits an [illegible] and is one of the ingredients [illegible] When [illegible] the leaves smell like those of [illegible] an acid and astringent taste.

[illegible] — The quinua (*Chenopodium quinoa*) [illegible] the Sierra and the Puna, where it [illegible] wholesome and pleasant article [illegible] of this plant before it attains full [illegible] but it is the seeds that are [illegible] food. They are prepared in a [illegible] most frequently boiled in milk or in [illegible] cooked with cheese and Spanish [illegible] stems of the quinua are used as fuel. [illegible] and is regarded in the light of a [illegible]

[illegible] tuberous plants are successfully cultivated [illegible] the potato, the ulluco, the oca, and the [illegible] there are several varieties, and all grown [illegible] (*Tropæolum tuberosum*) is smaller [illegible] and greatly varies in shape, being either [illegible] straight or curved. The stem is thin, and [illegible] yellow colour, and the inside is green. When [illegible] water it is insipid, but it is very savoury [illegible]

[illegible] is an oval-shaped root, the [illegible] and the inside white. The *Mashua* is cultivated [illegible] in the same manner as those already described. [illegible] pyramidal shape, and the lower end terminates [illegible] It is watery and insipid to the taste, [illegible] less much eaten by the Serranos. The Indians [illegible] as a medicine; they consider it an efficacious [illegible] in cases of dropsy, indigestion, and dysentery.

[illegible] has grown the *Quinua* plant to perfection in the [illegible] of Southampton. It grows very rapidly in the open [illegible] to the height of about three feet, and yields an abundance of seed which comes to early maturity. It will grow anywhere in [illegible] it required.

The *Coca-plant* (*Erythroxylon coca*) is cultivated between 5,000 and 6,000 feet above the sea, in the warm valleys of the eastern Andean slopes. It is a shrub like the tea-plant, growing about six feet in height, with bright green leaves and white blossoms, which turn into red berries. It is raised from seed in the beginning of January, in small plots of ground called almazigos. The following year they are removed to properly laid out coca fields and planted in rows, and crops can be gathered from them for forty years. When ripe the leaves are carefully gathered by women from off the trees, so as not to injure the twigs. The trees soon regain fresh foliage. The leaves are dried in the sun, and when perfectly dried are packed in bags. In Huanuco these bags weigh 75 to 80 lb., in Vitoc about 150 lb.

In the Montañas of Calca, Urubamba, and Paucartambo, the coca leaves are packed in baskets. Great care must be taken not to let the leaves get damp, otherwise they are spoiled. The Indian is never seen without his leathern pouch, called the huallqui, containing coca leaves, and he suspends his labour three or four times a day to masticate the coca, mixed with powdered lime, or the ashes of the quinua plant, or the musa root. The flavour of the coca leaves is bitter, somewhat like green tea. The Indians undergo great amount of labour solely by the use of the coca. The fact that it is beneficial is evidenced by the longevity of the Indians accustomed to take it, who have reached the age of 130 years. The aperient qualities of the coca, no doubt, prevent diseases, and are most useful in counteracting the obstructions caused by farinaceous food. We will now pass on to cocaine, a product of the plant.

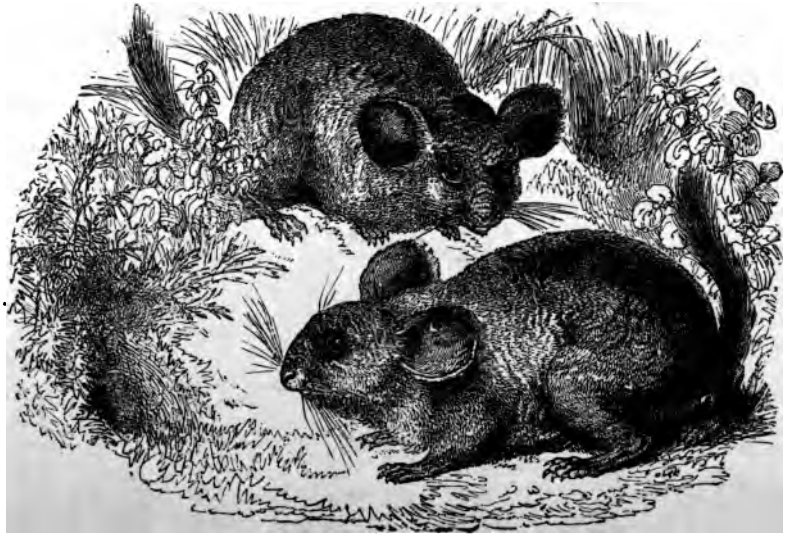
Cocaine.—The great benefit derived from the famed drug quinine, product of the Peruvian cinchona plant, and the amount of human suffering which has been relieved by means of its use throughout the world, are already well known. There is another drug which has lately been fortunately discovered by medical science, viz., cocaine, an alkaloid of the coca plant, mentioned above, to which we are indebted to Peru. It is only quite recently,—within the past three years,—that the valuable properties of this drug have been recognised by the medical profession in this country as a local anæsthetic. It is

especially invaluable for relieving pain during operations on the eye, as also for neuralgic pains on the face, &c.; and for similar superficial operations this drug stands unrivalled. It entirely supersedes and dispenses with the use of chloroform and other drugs which were formerly used for such purposes, which are more or less of a dangerous nature. As a stimulant, the leaves of the coca plant are very remarkable, as it is well known to nourish and sustain the system for many days without any other food being taken. Cocaine is also made into a wine, and its valuable properties are daily becoming more generally recognised in this country.

THE PUNA.

The Puna is the name given to the high table-lands and cold bleak regions lying between the central and the coast range of the Cordillera. These lofty regions form the highest parts of the South American highlands, standing at an altitude of 15,000 feet above the sea. The Puna, although poor as regards vegetation, is richly and beautifully represented by the animal kingdom. It is the home of the llama, alpaca, huanuca, and the vicuña, so valuable for their wool, and the chinchilla, which resembles a rabbit, whose skin supplies the beautiful fur so much prized by the ladies of Europe. It lives on the steep rocky mountains, and feeds upon the alpine grasses. Deer inhabit the high forests. Large herds of cattle are reared on farms in sheltered valleys on the Puna. Owners of farms possess many thousand sheep, and from five to six hundred cows. They graze often at an altitude of 15,000 feet above the sea, sheep doing better in the dry season than cattle. The dry grass is burned every year, in order to improve the fodder. The cattle and sheep form the principal food of the mining districts. The beef is dried and called *charqui*, and the mutton *chalona*. Dogs are kept for hunting the vicuña and other animals.

Feathered game is very plentiful, and is represented by the huahua or species of goose, the black curassow, spoonbills, cranes, snipes, &c., the yutu, a species of partridge, two species of ibis and plovers. The *lagunas*, or lakes, are



THE CHINCHILLA.

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inhabited by large numbers of water fowl, including the quiullus (white mews), the gigantic water hen, and many others. Birds of prey are represented by the immense condor and the huarahuan or the aloi, one of the grey falcon species.

As stated, the Puna is poor in vegetation. The expansive levels are for the most part covered with grasses of a yellowish brown tint, studded at intervals with queñoa trees (*Polylepis racemosa*), or by large patches of the katanhia shrub (*Strameria triandria*). The *Maca* is a tuberous root, and grows like the potatoes. The Indians boil it in milk, or roast it with maize, and in some districts it constitutes the principal food of the inhabitants. It thrives 12,000 to 13,000 feet above the sea. Barley is grown in the Puna at a height of 13,000 feet. It does not, however, attain maturity, but is cut green as fodder for horses.

ANIMALS OF THE PUNA.

The *Llama*.—The following is the description Dr. Tschudi gives of these valuable animals:—The llama measures from the sole of the hoof to the top of the head four feet six to four feet eight inches, and from the sole of the hoof to the shoulders from two feet eleven inches to three feet. The female is usually small, and weaker than the male, but her wool is finer and better. The colour of their wool varies greatly. It is generally brown, with shades of yellow or black, frequently speckled, but very rarely quite black or white. The speckled brown llama is in some districts called the moro-moro. The young llamas are left with the dam for about a year, after which time they are removed and placed with the flock. When about four years old the males and females are separated. The former are trained to carry burthens, and the latter are kept in the pastures of the level heights. Most of the flocks of llamas are reared in the southern Puna provinces, viz., Cuzco and Ayacucho, and from thence they are sent to the silver mines of North Peru. The burthen carried by the llama should not exceed 125 pounds, and the animal is seldom laden with more than a hundredweight. When the llama finds his burthen too heavy he lies down, and cannot be

made to rise until some portion of the weight is removed from its back. In the silver mines the llamas are of the utmost importance; they are frequently employed to carry the metal from the mines in places where the declivities are so steep that neither horses nor mules can keep their footing. A flock of laden llamas journeying over the table-lands is a beautiful sight. They proceed at a slow and measured pace, gazing eagerly around on every side. When any strange object scares them, the flock separates and disperses in various directions, and the arrieros have no little difficulty in re-assembling them. The Indians are fond of these animals. They adorn them by tying bells round their necks; and before loading they always fondle and caress them affectionately. If during a journey one of the llamas is fatigued and lies down, the arriero kneels beside the animal and addresses it with the most coaxing and endearing expressions. Notwithstanding all the care and attention bestowed on them, many llamas perish on every journey to the coast, as they are not able to bear the warm climate. The llama[1] finds sufficient sustenance in the moss and stunted herbage, principally the *ychu*, a species of grass that grows along the steeps of the Cordilleras. The structure of its stomach, like that of the camel, enables it to dispense with a supply of water for weeks together. Its spongy hoof, armed with two claws or pointed talons, enables it to take secure hold on the ice; it never requires to be shod. The load laid upon the animal rests securely on its woolly back, without the aid of girth or saddle. The llamas move in herds of 500, or even 1,000, and thus, though each individual carries but little, the aggregate is considerable.

The Alpaca.—The alpaca, or paco, is smaller than the llama. It measures, from the bottom of the hoof to the top of the head, only 3 ft. 3 in., and to the shoulder 2½ ft. In shape it resembles the sheep, but it has a longer neck and a more elegant head. The fleece of this animal is beautifully soft and very long; in some parts it is four or five inches in length. Its colour is usually either white or black, but in some few instances it is speckled. The Indians

[1] *Llama* also signifies flock

THE LLAMA.

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make blankets and pouches of the alpaca wool. The wool is largely exported to Europe, and in English markets it commands a good price. The alpacas are kept in large flocks, and throughout the whole of the year they graze on the level heights. At shearing-time only are they driven to the huts.

The Huanacu.—The largest animal of this family is the huanacu. It measures 5 ft. from the hoof to the top of the head, and 3 ft. 3 in. to the shoulders. On the neck, back, and thighs the huanacu is of a uniform reddish-brown colour. The under parts of the body, the middle of the breast, and the inner side of the limbs are of a dingy white. The face is dark grey, and the lips of a clear white. Of the huanacus there are not those varieties which are found among the llamas and the alpacas. The wool is shorter and coarser than that of the llama, and it is of nearly uniform length on all parts of the body. They live in small herds of five or seven.

The Vicuña[1].—The vicuña is a more beautiful animal than any of those just described. Its size is between that of the llama and the alpaca. It measures, from the sole of its foot to the top of its head, 4 ft. 1 in., and 2½ ft. to the shoulders. The neck is longer and more slender than in either of the other relative species, and from them the vicuña is also distinguished by the superior fineness of its short curly wool. During the rainy season the vicuña inhabits the ridges of the Cordillera, where some scanty vegetation is to be found. It never ventures up to the naked rocky summits, for its hoofs, being accustomed only to turfy ground, are soft and tender. It lives in herds consisting of from six to fifteen females and one male, who is the protector and leader of the herd. The Indians catch them by what is termed the *chacu.* They drive the vicuñas into circles formed by stakes and ropes, and then catch them by means of the bolas, a line with weights at each end, which they cast round the legs of the animals and impede their progress; this allows them to be taken alive.

[1] The present price of vicuña wool in the Liverpool market is 5/- per lb.

CHAPTER VIII.

The Gold and Silver Mines of Peru.

LIST OF THE MINING DISTRICTS.

NO country possesses such vast resources in metallic riches as Peru.[1] The mountainous districts from one extremity of the country to the other abound in all the precious minerals, such as gold, silver, platina, copper, iron, tin, lead, quicksilver, precious stones, salt, nitrate of soda, alum, coal, sulphur, saltpetre, petroleum, and other minerals.

The following mineral deposits deserving special mention on account of their richness were lately enumerated in a letter to the press by Admiral Aurelio Garcia y Garcia, Peruvian Minister to England:—"Beginning with the North, coal and petroleum are found on the seaboard comprised between Tumbes and Morrope, with shipping ports within a distance of a few yards; iron in the same department; sulphur and rock salt on the coast of Sechura, and near to the bay of that name; silver in Hualgayoc, Cajabamba, Celendin, and Chilete, which is partially connected by rail with the port of Pacasmayo; gold in Chachapoyas and Santo Tomas; silver in Pataz, Otuzco, and Huamachuco; and coal in Chala, which is also partially in railroad communication with the port of Salaverry; coal and silver in the pass of Huaylas, both considered as among the most valuable on account of their abundance and richness, their outlets being the ports of Chimbote, Samanco, Casma, and Huarmey; silver in Cajatambo, and salt in Huacho, the port of same name being the outlet; silver in Yauli and the province of Huarachiri, along the line of the Oroya railway; silver in Morococha, Pucara, and in Tarma, the port of which

[1] Of its wealth and magnificence, the historian Frezier tells us:—"When the Viceroy, Marquis de la Palata, entered Lima, in 1682, the merchants showed their wealth by paving to the extent of 150 yards the entrance to the Royal square with ingots of silver, which were 12 to 15 inches long, 4 to 5 inches wide, and 2 to 3 inches thick, weighing on an average 200 marcs each, and amounting to £32,000,000 of our monev."

is Callao; also the renowned mines of Cerro de Pasco, which are rich beyond description; quicksilver in Huancavelica, and silver in Castro-Vireyna and Lircay; platinum and cobalt in La Mar and Canzullo; copper in Ica, Lucanos, and Parinacocha, with outlet to the sea at Pisco and Chala, as also the gold mines of Aymaraes; gold in Huayllura, Palmaderas, and Montes-Claros, the mines of which in their day yielded millions to the Crown of Spain, but work was stopped in consequence of the falling of the mine. This rich territory is of easy access through the port of Quilca, but the ports of Ocaña and Atico are within lesser distance and will be utilised when systematic work is undertaken. There are coal deposits in Sumbay and silver in Cailloma and Puno; gold in Poto and Carabaya, connected with the coast by the railroad and port of Mollendo."

The mines of Huantajaya, near Arica, are particularly celebrated for the great masses of native silver which they contain in a decomposed *gangue*. In 1758 and 1789 two masses of native silver were found in two of its mines, one weighing 800 lb. and the other 200 lb.

From recent surveys of Señores Raimondi and Babinski, the gold mines known as the Palmaderas and Montes-Claros in the Union province are found to be amongst the richest ever discovered in Peru.

Rich gold mines have recently been discovered in Cerro Azul, a seaport south of Callao.

The silver vein at Carahuacra, in the Yauli district, is the fifth richest in the world; it has been surveyed for a distance of three miles and has a thickness of 99 feet. (See description of this mine, page 133.)

WEALTH OF THE CERRO DE PASCO AND OTHER MINES.

Colonel Harris, speaking of the vast mineral resources of Peru, says:—"The records of Madrid show that Cerro de Pasco, Hualgayoc, and Huantajaya, three mining districts only, produced during the occupation of the Spaniards up to 1803, £169,889,100, as follows:—

Cerro de Pasco	£61,860,320
Hualgayoc	38,028,780
Huantajaya	70,000,000
	£169,889,100

"The mind can scarcely comprehend the immense wealth produced from this country with the rudest appliances and unskilled labour."

Mining decadence has taken place yearly. Cerro de Pasco has lately only produced 200,000 marcs (100,000 lb.), Hualgayoc is all but deserted, and Huantajaya the same.

In one mountain above Cerro Colorado there are over 400 veins, one of which is 100 yards wide and can be traced for leagues, and at the surface yields 14 marcs of silver to the cajon. This is one out of many hundred cerros which are completely ribbed with metal.[1]

Copper ore can be raised in as great quantity as in Chili.

The Government of Peru, under its worthy president, General Caceres, in order to develop the resources of the country, and for the purpose of giving impulse to the mining industry, has resolved to open a mining exhibition in Lima, on the 28th July, 1888, at which will be exhibited a collection of the various minerals which the country produces, together with implements and machinery of the latest modern invention for mining purposes. English engineers are invited to send specimens of machinery to Peru for this exhibition.

COAL DISTRICTS.

There are many coal districts in Peru, several of them being of the best anthracite coal. Only a few of them are temporarily worked on a small scale. In 1877 the coal district of Otuzco, in Northern Peru, was explored by a Government Commission. They reported a very fine stratum at a short depth, ranging from 4 to 7 mètres thick, and expressed the belief that better strata may be found at greater depth. The different analyses yield an average of carbon of some 75 per cent. to 80 per cent., a splendid result.

The report says:—"As to the quantity of fuel, we dare say that it is immense, and that the district of Libertad is

[1] All the slopes and chains of the Andes are more or less crossed by rich silver veins, which in most cases are exposed to the eyes of the wanderer whenever he happens to take an unusual way through that labyrinth of mountains. The mining regulations of Peru being very liberal, any one may become the owner of the mine or mines he discovers for a very small fee of some 15 soles (60s.) paid half-yearly to the Treasury.—A. ESPINOSA.

able to supply the whole of South America during several centuries. Notwithstanding these mines are only some 40 miles from shore, and only 18 from a railway station, work is stopped at present, and will be until more hands and capitalists come to Peru."

The present average price of coal in Peru is $22, or £3 per ton, and the average consumption 200,000 tons a year.

PETROLEUM WELLS.

Large petroleum wells exist all along the coast from Tumbes to Paita, but are only worked at Zorritos, some 10 miles south of Tumbes. Many thousands of gallons run into the sea, which in a more populated and enterprising country would be worked, and would form a considerable income to private persons and to the Government.

SALTPETRE.

Doctor Ignacio Abadie has reported the discovery of a rich deposit of saltpetre in the north of the Republic, extending for no less than sixty square miles. A commission of engineers are now surveying the district.

CERRO DE PASCO.

The following particulars as regards this celebrated argentiferous deposit have been translated from a pamphlet by M. du Chatenet on the present state of the mining industry of Cerro de Pasco, published in the "Anales de Construcciones Civiles y de Minas del Perú" (Lima, 1883):—"The name of Cerro de Pasco is justly known by the enormous quantity of silver which it has produced for the last two centuries. In spite of the immense mass of mineral which has been extracted, it still contains within its veins sufficient wealth to remunerate the work of many generations. Cerro de Pasco is situate between the latitude 10° 55′ and longitude 75° 40′ W. of Greenwich. Its height above the level of the sea, according to Paz Soldan and Babinski, at Chaupimarca is 4,327 mètres, or 14,198 ft. The town is situate at the north of a large plain formed between the principal chain of the Cordillera—which follows its ordinary direction of south-east to north-west—

and an immense circle which it appears to make towards the south-west. The population consists principally of Indians, of small stature, but broad-chested, stoutly formed, and much accustomed to hard work. It now contains 8,000 to 9,000 inhabitants. The climate is healthy, although it is subject at certain seasons to heavy storms of rain and snow."

GEOLOGY OF CERRO DE PASCO.

Notwithstanding the difference in their nature and composition, the ores of Cerro de Pasco are all valuable for their metallurgy of silver. We will use the same classification as the miners of the district, who distinguish, amongst themselves, the *pacos* or *cascajos*, the pyrites, the *pavonados*, the ores containing lead, copper, and silver. All are argentiferous, and contain a variable quantity of silver, from traces hardly visible in certain *pacos* or pyrites, to a fair proportion in some *pavonados* (grey copper ores). Of these different ores, at the present time there is only one class which is the object of active work—the *pacos*. Only a few cajons, of the other ores are occasionally worked.

The ores generally known in Peru, under the name of *pacos*, are the same as those called *colorados* in Mexico, and the two words, which are the same in Spanish and in Quechua, arise from the red colour, more or less bright, in which these ores always appear. This class of ore appears peculiar to America. Its exterior characteristics do not denote the presence of silver to a mineralogist who is not familiar with them. They are more like an iron ore of medium ley than a silver ore. All have an appearance more or less stony and earthy; they scarcely ever show any trace of crystallisation, and are coloured more or less strongly by oxide of iron, which forms an important part, and at times almost the whole, of the ore. Respecting their chemical composition, these *pacos* present the peculiarity of having only oxidised matter, and even these are found under the state of higher oxidation.

These are the general and common characteristics of all

[1] The cajon of Peru is equal to three tons.

the *pacos* or *cascajos*, but their chemical composition varies according to the positions in which they are found. In almost all oxide of iron forms a principal part; others have, besides, lead or copper—the lead in the state of carbonate, the copper in the state of oxide or carbonate. Ferruginous ores are chiefly found in the *tajo* of Santa Rosa and its vicinity; copper ores are found in the district of Yanacancha, and generally under the buildings of the city; lead ores in the upper part of the Pariajirca district, at a short distance from the limestone rocks which divide the ore regions from the eastern side. Not only do the *pacos* differ in composition, but also in structure; they are presented under various conditions—some of a variable colour, from clear yellow to dark red; they appear to have a homogeneous structure, and are principally formed of oxide of iron more or less compact, being a combination of various oxides. They are found either stony or earthy, and are extracted either by powder or dynamite, or simply by the pickaxe. They are either as solid as rock or as friable as earth, the appearance of which they have. In the first case they are called *cascajos*, and in the second *llampos*. Others, on the contrary, are principally composed of siliceous sandstone, with a little earthy matter which appears to be impregnated with oxide of iron—as in many mines of the *tajo* of Santa Rosa. This argentiferous sandstone is designated under the name of *pedernal*. The *pedernos* are a variety of *cascajos*, harder than other kinds, and are worked by means of powder. Sometimes the *cascajos* present the appearance of scoria, having a half-melted half concretionary appearance, and showing innumerable cavities or pores. This variety is interesting as showing the mode of formation of these minerals, and is called *chicharrones* by the miners.

In the lower part of the earth, which shows the phenomenon of oxidation, there is found at times, on the upper side of the vein, like a covering, earthy ores called *caprichos*, which are worked in some mines. In the same situation, these ores, when they are more yellow and charged with iron, take the name of *pastelillos*. The *cascajos* are nothing more than a hard or decomposed sandstone impregnated with iron and silver. It is almost im

possible to say to which formation this sandstone belongs. The Cerro does not contain fossils of any kind, and the study of the stratified formations affords no results, on account of the *capas* (stockwerk [1]), which do not show any kind of stratification. There is no other means of deciding this question except the very uncertain method of examining the structure and character of the rock. This leads to the conclusion that the Cerro is of Jurassic formation.

Whatever may be their composition or nature, these *pacos* of the Cerro do not contain a high percentage of silver; in many cases there sometimes exist traces of that metal, considered profitably workable when they contain at the least four marcs (32 ounces) to the cajon. It would be difficult to say up to what percentage the richest ores might yield; some of the mines are known to produce rich-yielding ores of twelve to fifteen marcs (96 to 120 ounces), but they are very scarce. It may be said that the greater part of the mines actually worked furnish very poor ores of from four to six marcs the ley. These ores, now being worked by the miners, form the backbone of the district. It is evident that the profitable ores are by no means as rich as many imagine, but, in spite of the great diminution of production in the Cerro, the mines continue to yield annually considerable quantities of silver. The reason is, the inexhaustible abundance in which the ores are found, and the facility with which they can be worked.

Cerro de Pasco is, owing to the enormous quantity of argentiferous minerals it contains, certainly one of the most important deposits of silver in the world. Its mode of occurrence is likewise very interesting from a geological point of view, and scientists differ considerably as to its orgin. The mineral matter which generally yields the useful metals shows itself in three different modes of occurrence,—small fissures or veins, as *capas* or stockwerk,

[1] Stockwerk is the name given to the appearance of veins which, by successive nearly parallel fissures, are filled with mineral matter; a vein becomes of very great and almost indefinite width, making it difficult to follow. Veins of this description are worked in successive floors or storeys.

and in groups or distinct layers, the geological formation being either of igneous or sedimentary origin. The examination of the boundary between the argentiferous and sterile rocks can hardly serve to determine this question, since in the Cerro the boundary is very indefinitely defined. When we take into account the extent of the deposit, this fact is not surprising, if an igneous origin be attributed to this formation; the contact of the erupted materials with the walls of the fissure which has been filled with mineral matter would have produced a powerful metamorphism in the sedimentary strata; as in limestones, the argentiferous material would have been able, under the influence of pressure and heat, to impregnate them a little, therefore it can be easily understood how it happens that in certain parts silver ores are found in the limestone of the Cerro. If, on the contrary, we consider the formation to be of sedimentary origin, it can be explained on the hypothesis that during the eruption of the neighbouring rocks, and of the metamorphism which they have caused, small portions of the pre-existing materials have been drawn along, or separated from, the principal mass, and transported to a certain distance.

In the Cerro the miners often speak of veins, but I believe their idea of that word does not convey the same signification as that of its literal sense, and that they only designate as veins the richest parts of the ores, which yield enough metal capable of being refined with profit. Without expressing any opinion as to the mode of formation, I did not find any deposit deserving the name of vein or fissure in the generally accepted sense of the words. May not the metal-bearing formation of the Cerro be a single vein of variable richness and of considerable width? Serious objections could be raised to this theory. Whatever may have been the mode of formation of a vein, the nature of its constituents always shows certain special characters. Three different ingredients are observed in its composition—the relleno,[1] the gangue,[2] and the useful

[1] The relleno is the principal mass of rock which surrounds the vein of workable ore.

[2] The gangue is the matrix or portion of a rock in which an ore is deposited.

ore. The gangue mass contains different materials, but most of them are sterile; for example, pyrites, spathic iron, the different oxides of iron, zinc blende, quartz, felspars, arragonite, carbonate or sulphate of lime, fluor-spar, sulphate or carbonate of baryta, &c. Of the metals which generally constitute the gangue mass, we meet with pyrites and oxide of iron at different altitudes. Here these materials are not really the gangue, but the useful substance; and they are very far from constituting the whole of the mass, since the *cascajo* and pyrites have sandstone as the principal component part, as is observed in the pedernal of Santa Rosa. The structure of these materials does not resemble an igneous origin; they have scarcely any crystals, and are hardly ever found crystallised with carbonate of lead. The general mass of the metal does not present a crystalline structure whatever, as happens in veins, where the small cavities are decked with crystals.

The Cerro can be easily considered as forming a strata, or rather a series, of stockwerk. However, it is not easy to recognise the stratification; in some parts there can be seen some traces of formation of *pacos;* generally nothing can be absolutely distinguished, as the rocks are of a homogeneous structure, and their different aspects or nature follow no visible rule. However, it is without doubt, all the materials which compose the deposit exist in the state of stockwerk; many other deposits are found where there is no doubt that the formation is of sedimentary origin.

If we consider the Cerro as one immense aggregation of metals, which may be either one vein or one stockwerk, it appears to me most natural, for the reasons already given, to take it for sedimentary formation. Up to the present time there have been no researches sufficiently deep to decide the question as to which formation it belongs.

In the neighbourhood of Cerro de Pasco there are being worked at present thirty mines, of which Colquijorca and Vinchos are the oldest. They are working in the Candelaria mine a magnificent vein of argentiferous ore. In working the mines it is customary, on arriving at a depth

when they meet with water, to abandon them without any effort, in most cases, being made to drain them, and a new mine is commenced.

In Cayac	there are	33	mines working, and	76	abandoned.
,, Pariajirca	,,	2	,,	46	,,
,, Mataderia	,,	1	,,	9	,,
,, Chaupimarca	,,	...	...	32	,,
,, Yauricocha	,,	2	,,	68	,,
,, Paccha	,,	1	,,	54	,,
,, Patarcocha	,,	...	...	26	,,
,, Santa Rosa	,,	62	,,	53	,,
,, Ayapoto	,,	9	,,	4	,,
,, Huancapucro	,,	3	,,	4	,,
,, Arenillapata	,,	12	,,	16	,,
,, Valeria	,,	7	,,		
,, Santa Catalina	,,	11	,,	11	,,
,, Uliachin	,,	3	,,	15	,,
,, Portachuelo	,,	3	,,	23	,,
,, Tingo	,,	4	,,	2	,,
,, Pampas de San Andres		5	,,	27	,,
,, San Juan	,,	1	,,	7	,,
,, Rumillana	,,	...	,,	4	
,, Mata-gente	,,	2	,,	4	,,

From the Mata-gente mine,[1] according to report, the richest mineral was extracted, but the working has been almost suspended owing to a general falling in of the mine, which buried 300 workmen. For some time past the miners of the Cerro have been actively engaged with the question of the water in the mines, which is of vital importance for the prosperity of the district. The department of Public Works is now constructing a tunnel to drain the mines. It is to be cut from Mesapata as far as the valley of Rumillana, where it will empty itself.

Comparing the return of silver bars cast at the foundry in late years to those formerly cast there, it is seen that the production has decreased considerably ; formerly the quantity exceeded 300,000 marcs, but lately it has decreased to 159,000 marcs.

[1] "Mata-gente" means "kill-people," and is the name by which this mine has been known since the accident.

ITS COAL DEPOSITS.

The combustible mineral deposit of Cerro de Pasco may be considered as one of the richest of the Republic, but as the use of coal has not been extensively introduced in the refining of the ores, this wealth is almost useless, and its working almost nil. Of these combustibles the most important is coal, which exists in very many parts of the province. The beds are generally much charged with volatile materials, mostly pyritous, and have a large proportion of ash; very bituminous specimens are met with, which can be advantageously used in the manufacture of gas.

There are altogether sixty-four coal mines, of which twenty-eight are being worked, and thirty-six are abandoned. The coal, which is consumed for domestic purposes and smith's work, is worked principally in the districts of Chacayan, Pária, Jusi, and Huallay, and that obtained from Rancas is used in the smelting foundries and for distilling the amalgam. The only cause which exists for such a small consumption is the difficulty of transport. The mines are situated several leagues from the towns, and the coal cannot be brought there except on the backs of animals, on which account the working of this combustible is exceedingly inactive, and at the present time there is not a single mine which merits the name of such by the quantity of material taken out. The coal industry, now of so little importance in the Cerro, is capable of being very rapidly developed as soon as the railroad is constructed, which will place this deposit in communication with the coast. Being then sure of finding a demand for their products, the proprietors of the mines would establish roads to the railway, and increase very considerably their workings; there will then be an abundance of coal brought to the Cerro at a low price, which will bring about a radical change in the methods now employed, by the adoption of a more perfect system of smelting, by which means they will be able to work at a greater profit all the varieties of ore which exist in that deposit.

Coal is not the only fuel which nature has provided in this deposit; in the quebradas or pampas which are near

the Cerro there is found a large quantity of peat, which the Indians call *champa*. This peat, dried during the summer, serves very usefully for domestic purposes, and although it constitutes a fuel of inferior quality, it would probably be profitable in the operations of a local industry.

The animals provide by their excrements another class of fuel, which is known as *táquia;* this they collect from sheep and llamas. Owing to its abundance and cheapness (one ton of táquia only costs at the most ten soles), it is used by the Indians in foundries for refining galena.

MAGISTRAL.

The galena ores are smelted by means of furnaces. Another industry assisting in the refining of the pacos in the Cerro, is the making of magistral.

The useful properties of magistral arise from the sulphates of copper and iron which it contains, and its separation is effected by the heating of iron and copper ores; these metals are a mixture of iron and copper pyrites with other copper ores, which gives the material a black colour. As the magistral owes its active qualities to the proportion of copper which enters into its composition, the ores which contain the most copper are those most valued for this purpose; these ores are taken from some mines in the district of Zanacancha.

The operation of manufacture is carried out by means of a reverberating furnace of very simple construction, táquia being used as fuel. The furnace is charged through an aperture in the upper part of the arch. An oven-full, consisting of 120 arrobas of crushed ore, is introduced; the fire is kept at a temperature of a deep red heat, so as not to melt the material. Air enters freely by the door of the furnace, to facilitate the formation of sulphates. When the fumes of the gases diminish, twelve arrobas of ground salt are added, which is mixed with the other materials. The operation is completed when the fumes of sulphuric acid cease, and the furnace is then discharged for another supply. Salt is mixed with the other materials for the purpose of converting the copper to a soluble state, by the chloridisation of the oxide of copper which

had not become sulphuretted, or that proceeding from a decomposition of sulphate already formed. A sample of magistral in most use in the Cerros gave the following results :—

Part soluble in water	Sulphate of copper	9·75	18·85 %
	Sulphate of iron	1·14	
	Chloride of sodium	3·36	
	Sulphuric acid in excess	4·60	
Part insoluble	Oxide of copper	1·50	81·15 %
	Peroxide of iron	44·92	
	Oxide of lead	3·78	
	Sulphuric acid combined with lead and iron	2·80	
	Silica and other materials	28·15	
		100·00	

This result is very interesting, as it plainly shows the fact already known by all the miners, that the power of magistral depends principally upon its proportion of copper, whilst the iron possesses scarcely any importance.

THE SALT MINES.

The mines which supply the salt employed in refining the ores are situated at San Blas, twelve miles from the Cerro, and belong to Señor Agustin Tello. As there are several salt springs in various parts, no doubt other mines will be discovered.

WANT OF DRAINAGE TO THE MINES.

The silver mines, with some exceptions, are not in the hands of rich persons, but in the hands of those who are obliged to borrow at the banks at various rates of interest. There is no spirit of association; each one separates himself from the others, and they have introduced no improvements since the time of their forefathers. In order, therefore, to re-establish its former importance, it is necessary to give fresh impulse to the execution of the works for draining the water from the mines, and the miners and proprietors of the Cerro ought to make every effort to perfect or change the primitive methods which they are at present using. Thus the

prosperity of the Cerro can be revived, and this celebrated region will continue to merit in the future, as in the past, its renowned fame for proverbial wealth

PROFESSOR ORTON ON THE CERRO DE PASCO.

The most famous silver mines in South America, after those of Potosi, are the mines of Cerro de Pasco, sixty leagues N.E. of Lima. They are situated on the Atlantic slope of the Andes, over 13,000 feet above the sea, where the prevailing rock is conglomerate. The silver, discovered by an Indian in 1630, occurs in the native state, also as sulphide mixed with pyrites, cobrizo (a carbonate of lead and copper, with sulphide of copper), and with oxides, forming what are known in Peru and Mexico as pacos and colorados. The ore is treated with salt and mercury, but so rudely that generally one pound of mercury is lost to every half a pound of silver extracted. Fortunately Cerro de Pasco is only 200 miles from the celebrated quicksilver mines of Huancavelica. According to Herndon, the ore yields only six marks to the cajon. (A mark is eight ounces, and a cajon three tons.) A representative specimen in my possession contains 0.004 of silver. During the last two centuries and a half, the mines have produced about $500,000,000. The annual amount of ore mined, at present, does not exceed 110,000 tons, each cajon yielding on an average 4½ marks (36 ounces), the amalgam containing 22 per cent. of silver. Just now work has nearly ceased, owing to the inadequate means of drainage. But at Cerro de Pasco, as at other places, it has been found profitable to re-work by the improved modern methods the tailings left by the old Spanish miners. The contemplated connexion of the Oroya Railroad with a line from Pasco will give new impetus to the mining interest.

Hualgayoç, fourteen leagues north of Cajamarca, has long been celebrated for its rich mines, but it is also afflicted with a plethora of water. The Cerro, unlike most silver mountains, presents rugged, tower-like points, and is perforated on every side up to its very summit. The rock is siliceous. There are many good mines in the vicinity of Lampa and Puno, on the borders of Lake Titicaca; those of Manto, Salcedo, Chupica, and Cancharani were

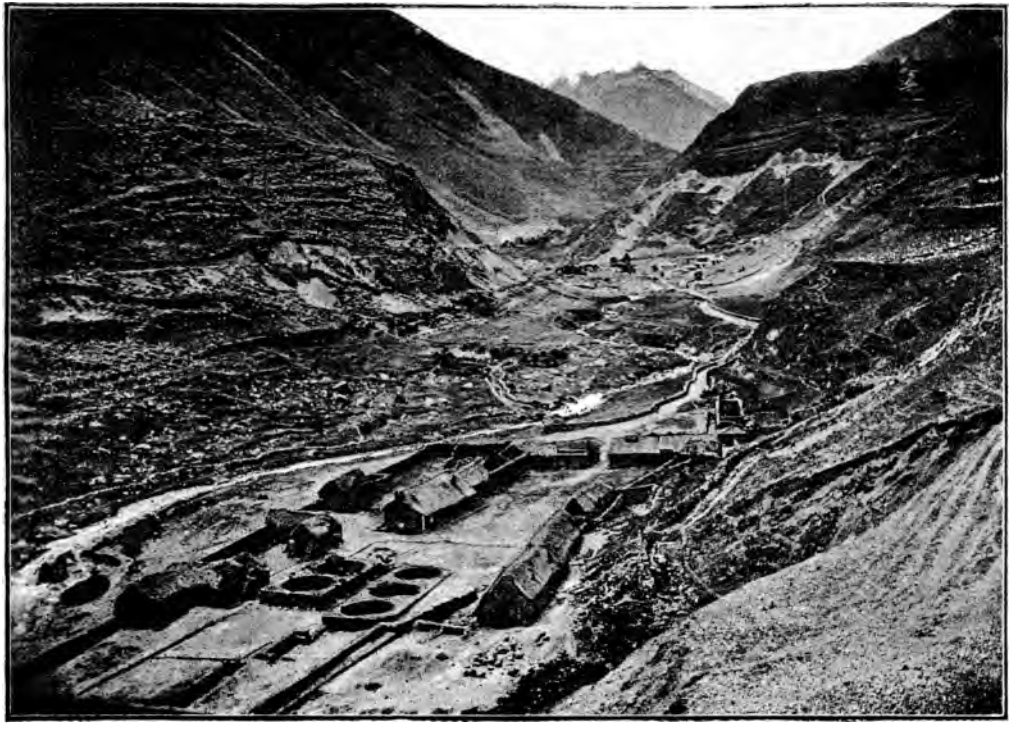
famous in Spanish history. In the seventeenth century the mines of Puno were inferior only to those of Potosi. The richest ores are called brosa, rosicler, and pavonado. The first yields forty marcs to every fifty quintals of ore. The ores of Huantajaya, Carmen, and Santa Rosa, near Iquique, yield from 2,000 to 5,000 marcs to the cajon. Without question they are amongst the purest in the world. Masses of pure silver have been found on the surface of the plain, one weighing 800 lb. Rich deposits occur also in the province of Cailloma, north of Arequipa, and at Yauli, San Mateo, and other localities near the Oroya Railroad. Extensive veins have been recently discovered at Chilete, the terminus of the Pacasmayo Railroad, the ore assaying from $60 to $200 a ton. A Bostonian has a large interest in this mine. Silver associated with gold and copper is found in the Cerro Potoche, near Huancavelica. The mines of Hualanga, near Tarma, have yielded 3,000 marcs in a year.

THE SILVER MINES OF YAULI.

Extracted by permission from "Apuntes sobre el Distrito Mineral de Yauli,"[1] *by* LEONARDO PFLUCKER Y RICO. *Lima*, 1883.

Leaving Lima by the Oroya Railroad, in nine hours one arrives at the end, which is at present the small town of Chicla, situated in the narrow and deep ravine of the Rimac, at 126 kilomètres (seventy-eight miles) from Lima, and 3,725 mètres (12,162 feet) above the level of the sea. From thence it is a short day's journey to the town of Yauli, passing by the mining haciendas of Pomacancha and Bellavista, the villages of Acchahuaro and Casapalca, and the quebrada of Piedra Parada, which contains rich veins of silver, copper, and lead. Passing the mining establishments of "El Carmen" and "La Americana," and gaining the summit of the Cordillera at the narrow pass of Paracte or Piedra Parada, at an altitude of 4,900 mètres (16,076 feet) above the sea, from thence descending by the valley of

[1] "Anales de Construcciones Civiles y de Minas del Perú," published by the School of Mines, Lima, 1883.



MINING HACIENDA OF POMACANCHA. *Face page* 130.

Viscas, we arrive at Yauli, the total distance from Chicla being thirty-one kilomètres (nineteen miles.)

The town of Yauli is situated in a quebrada or valley, watered by an affluent of the Mantaro. There is nothing particularly deserving notice. The houses are built of adobe bricks, with roofs of straw or corrugated iron. There is a good school for boys and girls; the inhabitants number 600, and the district of which Yauli is the capital contains 5,326 inhabitants. But the town owes its importance to being the centre of an exceedingly rich mining district. It lies on the high road from Lima to Tarma and Jauja, or rather to the Junin Department, the trade of which to the coast is very considerable.

The province of Tarma, comprised between 11° and 11° 40′ south latitude, extends from west to east from the summit of the Cordillera mountains to the river Ene (formed by the Apurimac and Mantaro), which separates it on the east from the department of Cuzco in the virgin region of the Montaña. It is one of the four provinces which comprise the department of Junin. Between the two crests of the Cordillera mountains, which are distant from twenty to sixty kilomètres apart, there extends (from N.N.W. to S.S.E.) an elevated table-land at an altitude of 4,400 mètres, but so intersected by wide valleys and deep ravines, that it loses, in fact, the character of such, being traversed by ridges of greater or less extent, which enclose within them numerous valleys and narrow passages, generally traversed by rapid streams, all of which form the special characteristics of the table-land, or Sierra, the part of the province which is most populated, and which has the most productive and abundant resources.

From north-west to south-east the table-land is traversed by the Mantaro or Oroya, which is the most important river. This river has cut a deep channel, into which flow all the rivers and streams which fall from the two lower flanks of the Cordilleras. The river Chanchamayo, with its affluents, form an exception, which, taking its source in the table-land south-west of Tarma, passes to the north-east, crossing the Oriental Cordillera through a deep and narrow quebrada, and flows into the Perené.

The ridges and smooth declines of the table-land, although in some parts arid, are usually found covered with an abundant natural pasturage, which serves to rear a large number of animals, such as sheep, vicuñas, and llamas. There are places where the pasture grows over one mètre (3¼ feet) in height, and some farms maintain 30,000 head of sheep. On account of the climate being cold, this elevated region, called "puna," is but scantily populated. Apart from some houses in which the resident managers of estancias or proprietors of sheep reside, there are only to be met with here and there shepherds' huts, which are a considerable distance apart. No rain falls here, only snow and hail.

The villages and houses are built in sheltered valleys. Barley, potatoes, wheat, maize, and other fruits are cultivated, according as the country descends to the valleys of the Mantaro and Chanchamayo. The upland rivers, being only small, can be easily forded in the dry season, and even in the wet season it is not difficult to cross them.

The geological structure of the Yauli district shows numerous eruptions in the immediate neighbourhood of the Cordilleras, but towards the centre of the table-land the disposition of the strata is more regular, and in some places it is horizontal. In the Oroya valley the strata are found in a vertical position. A great number of fossils are found in the calcareous deposits, and at Chaplanca, 4,467 mètres (14,655 feet) above the sea, there is an immense quantity of ammonites, several of which measure 36 centimètres (14 inches) in diameter, and many other fossils.

Mineral Springs.—There are warm mineral springs near Chaplanca and Yauli; the temperature of the former is 54° Centigrade. The water, when taken, is somewhat laxative, and as a bath it has been employed with excellent results in curing skin and other diseases. According to the analysis of Señor Raimondi it contains sulphates, chlorides, and carbonates of sodium, calcium, magnesia, lithia, and iron, the salts of sodium chiefly predominating. In this respect, as also for its high temperature and in its deposits of *Toba*, it resembles the celebrated mineral waters of Carlsbad, in Bohemia.

Metalliferous Veins. The principal Cordillera offers an extraordinary abundance of metalliferous veins in the whole of its extent, and they appear to be intimately united to those of the eruptive rocks. In the centre of the table-land, where the strata are but little dislocated, veins are rare and of little value.

The Mines.—The miners now limit themselves to working the veins of silver and a few of the deposits of coal in the district. The veins of silver, including under that denomination *argentiferous* galena, predominate over all others, together with important veins of copper and antimony and a small amount of cinnabar.

Andaichagua, a village situated to the east of Yauli, is the region of native silver *par excellence.* The principal mine, Machoruca or San José, is not worked. Its ores are composed of lead (*ronco*), native silver, zinc blende, and quartz. There are many other mines of less importance.

Carahuacra, situate to the south of Yauli, is the most renowned and productive vein in the district. It has been surveyed and found to extend for a distance of 5 kilomètres (3 miles), and its thickness in places to be 30 mètres (99 feet). These enormous dimensions rival the largest silver veins known, such as the Comstock in Nevada, which is 7 kilomètres (4¼ miles) long and in parts 60 mètres thick; the Veta Madre of Guanajuato, 14 kilomètres (8½ miles) long and 10 to 66 mètres thick; the great vein of Zacatecas, of little less length than the former, and 10 to 22 mètres (33 to 72 feet) thick; and the great vein of galena in Clansthal, in Prussia, 8 kilomètres long (5 miles) and from 6 to 130 feet thick. The Carahuacra vein is superior to these in the richness of its ores. Its course is north-west to south-east, in which direction there is seen rising above the surface a gangue quartz of dark grey colour, interrupted by an accumulation of large boulders of dark grey colour lying in the direction of the gangue. It is composed of quartz, of grey or black colour, in which the ores are scattered in small irregular veins or nests, which makes the working somewhat difficult. There are ores of silver—native silver, ruby silver, rich *pavonado* (argentiferous grey copper ore), with much zinc blende, pyrites, and a little galena; the

zinc blende is of different colours, yellow, chestnut, and black. The northern part is the better known, and up to the present time has almost exclusively produced the metal. Here also are the Carmen (San Antonio de Callapa), San Francisco, San Marcos, and San José (Ventanilla) mines, which occupy, according to the *Padron de Minas*,[1] an extent of 1,600 yards (1,337 mètres).

The *San Francisco Mine* had been, without doubt, much worked during the colonial period, as is shown by the extent and depth of its works. In the San Francisco mine the predominating ore is ruby silver with zinc blende; in the San Marco, a mine likewise much worked, although not so much as the former, it is the *pavonado fino* (argentiferous grey copper ore), under which name they denote the grey copper ore of high ley of silver, which is generally 8 to 10 per cent.[2] The other mines are abandoned.

Pomatarea, to the south-west of Yauli, is a valley enclosed on the north by snow-carpeted hills, on both sides of which there are argentiferous veins.

Galera.—In the quebrada of this name, situated on the north-west of Yauli, there are various mines, now abandoned; one owned, the San José, but not worked.

Paracte.—This cerro, situated near the Piedra Parada Pass, contains several mines, amongst them two are owned, the Carmen and the San Francisco (Saco Huarmi). Both have produced in former times good ores, those of the San Francisco mine yielding *pavonado fino* (argentiferous grey copper ore) with quartz. But to the west, on the western slope of the Cordillera, are the Bella Union and Araucana mines, in the Cerro Chuquichuecho; the San Antonio, in Colquiputo; the Elena, in the Cerro Cuarenta Varas; and the Señor de los Milagros, in Antapuero. The ores from these mines are exported to Europe. In the Bella Union they are composed of argentiferous grey copper ore, zinc blende, and pyrites in quartz. In the Cerro Pucaurco, near the Pass of Antarangra, the Volcan mine is worked in a vein half a mètre thick, extending north-east and south-east. Its ores,—pavonado

[1] The *Padron de Minas* is the official Register of Mines, published half-yearly.

[2] This is an extraordinary rich ore.

fino, rosicler (ruby silver), galena, zinc blende, and pyrites in quartz (white and red),—are exported to Germany; the ley of the silver 0·5 to 0·6 per cent., of gold 0·4. It is still worked.

Anticona.—To the east of Antarangra. In this ravine they work at the north of it, at the foot of the Nevado Yanasinga, the Libertad mine; towards the west, the San José mine, which is owned. To the south-east of this point, and of the Cerro Pucauro, is the place called Tarantan; here the Esmeralda mine is situated.

Alapampa.—On the descent of the mountain, extending to the north of the lake Huacracocha, there are various mines; the most important is Yanamina. There are also owned in this cerro the San Joaquin (or Aguilar) and San Pedro Alcántara mines.

Nuevo Potosi.—This cerro, which rises 379 mètres above the immediate hacienda of Morococha, extends from south-east to north-west. The stratified ground contains numerous argentiferous veins, which run perpendicular to the *eje*[1] of the cerro, and some parallel to it, the principal from the west.

Santa Barbara and *Santa Rita.*—The latter is a vertical vein of one mètre thick, running north-north-east; it is at present being worked.

San Antonio.—A mine much worked during the last thirty years, and which has at times employed 250 men. The ore is very rich (100 marcs of silver per cajon, or 0·8 per cent.[2]). The ores are refined in Tuctu by amalgamation.

Elvira.—A mine still being worked.

Purisima.—A vein half a mètre to one mètre thick, not worked.

San Pablo.—The nearest to the eruptive rocks; not worked.

Victoria.—A wide vein, half a mètre to three mètres thick, not worked.

[1] *Eje*, direction of the length of the cerro or hill.

[2] The Peruvian cajon consists of 3 tons, each 2,000 Spanish pounds. The Spanish pound contains 2 marcs of 8 ozs. each; the value in the decimal measure being 460 grains. A marc is, therefore, one 12,000th of the cajon.

Yacumina.—In this district, situated to the south of Morococha, two mines are worked.

Buenaventura.—The vein is vertical, one mètre thick.

The Cerro Santa Clara, between Morococha and Yauli, contains argentiferous veins; in it are situated the mines registered in the Padron, Octavio Rubi.

Toldojirca.—To the south of the lake of Huacracocha there is a cerro in which are situated the Pucalabor, Libertadora, San Antonio, and San José mines; and in close proximity on the west the mine of Sacramento Pucalabor, which has a vein one mètre thick, but is not worked. San José, a vein one mètre thick; its ores are refined at Tuctu; its ley of silver is generally 0·2 per cent., rising above that when they contain pavonado. San Antonio and Libertadora, situated in the centre of the cerro, are two mines in the renowned manto[1] of Toldojirca, which consists of a (faja) of ore (galena, with lead ronco) from half a mètre to one mètre thick. The argentiferous manto having yielded ores of 60 to 100 marcs (0·5 — 0·8 per cent. of silver), and in time of *boya*[2] from 400 to 800 marcs per cajon (3·3 — 6·7 per cent.). Accompanying the galena is cerusite, anglesite, azurite, and malachite; sulphite of silver has been found in small nests, disseminated in the form of small powder.

Alpamina.—To the east of the former is another cerro which was noted for the quantity of rich metal which it produced in former times. In it are situated the Mercedes, San Antonio (Sacracancha), San Francisco, Pucara, and Rosario mines. The vein in the latter has been much worked, and produces ores of very fine ley, but it is not worked at present.

In Cerro Concuspata there are the Señor de la Carcel and Santa Rosa mines. The latter abandoned; the former has a vein one half mètre to one mètre thick; its works extend for 90 mètres.

Vicharayoc, a cerro situated to the north of Yauli, contains the Trinidad, Noria, and Pisagua mines. In them there is a vein of argentiferous galena one mètre thick,

[1] *Manto* is a horizontal mineral deposit, without formation of veins.

[2] A mine is said to be in *boya* when it yields an unusually rich ore.

and lately the ore has been exported to Europe. Near Vicharayoc is the Cerro San Andrés, in which is situated the Augusto mine. Santiago, the cerro in close proximity to Yauli on the north, contains veins of ruby silver, and was noted for the rich quality of the ore produced in former times. In it are situated the mines of San Pablo, Santa Elena, and Talisman. The two former are not worked; in the latter works of very considerable extent and cost have recently been made. The ley of silver is from 0·25 to 1 per cent.

There are also the mines—San José, situate in the Cerro Siripata, in the neighbourhood of the town of Huaipacha, distant 30 kilomètres (18½ miles) from Yauli, and San Juan Bavtista, near the river Pallanza, situated 80 kilomètres (49½ miles) to N.N.E. of Yauli—which possesses an establishment for refining ores by fire and amalgamation. Besides the before-mentioned mines of silver there are some which yield other minerals—copper, cinnabar, sulphur, coal, salt, &c. The coal mines of most importance are those of Santo Domingo, Sorao, and Chinchu.

THE LABOUR DIFFICULTY.

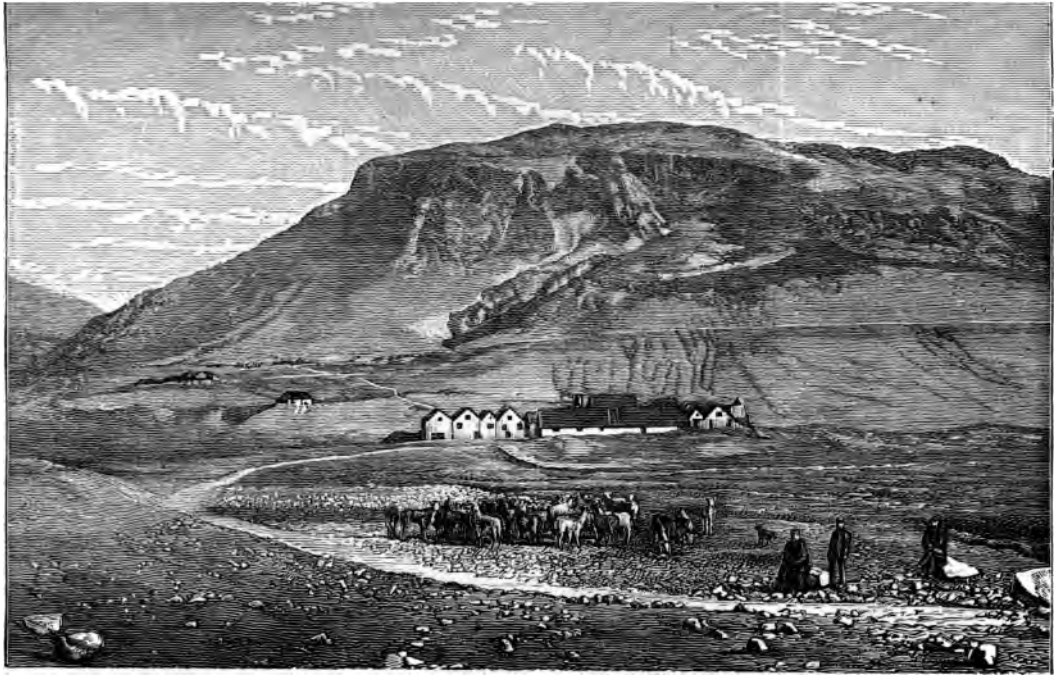
The great difficulty which hinders the development of mining in this district is the scarcity of labour, as very few of the labourers live constantly in the mineral establishments and neighbouring villages. The greater part come by contract from a distance, particularly from the populated valley of Jauja, which supplies labourers not only to the Yauli mines but also to those of Huarochiri and the sugar estates of the Montaña. The hours of labour are from six or seven in the morning to six in the evening, with a half-hour's interval at 9 a.m. and and another half-hour at 2 p.m.; but generally they make two *huaraches* (night-work) in the week, in which case the people leave the mine at five in the evening, and return again at seven or eight; the same in the morning. There are workmen who ask for three *huaraches* in the week, so that they only rest twelve hours out of each twenty-eight hours of work, which

appears strange, but can be understood when the natural physique of these men is observed, aided by the use of coca. They are paid one silver sole (3s.) a day.

The workmen of the province, as they are there called, come from the Jauja valley, and generally contract for three months; almost all of them have their dwellings and land in that district, and from April to June and from October to December they attend to sowing and their harvest. This is one of the obstacles to mining; another is the rugged state of the country, and want of proper roads for transporting material.

The use of carts being impracticable, the transport is effected on the backs of animals; consequently the miners are unable to use machinery, and the expense of the conveying of coal would be too heavy on account of the great number of llamas which would be required, for in spite of the great number of these useful animals which exist in the district (the Morococha estate, for example, keeps regularly 1,000 to 1,200 llamas), they are not sufficient to meet all the requirements of the carrying of the ore, salt, táquia, provisions, &c. The use of mules is limited to transporting loads which are unsuitable in form, weight, or volume for llamas. The use of the former, however, is much more costly than the latter animals, notwithstanding that mules can be loaded with 115 to 138 kilogrammes (253 to 303 pounds) and the llamas only with 46 kilos (101 pounds).

The mines at present in actual working are proportionally few. Amongst those which have been worked with some regularity of late years are those near the pass of Paracte or Piedra Parada, the mines of the Pucara estate, the silver from which, refined on the establishment, is exported at the present time; those of the Carmen estate (close to Yauli), and the mines of the estates of Rio Pallanga and Morococha. The production in the last ten years ending 1880 may be estimated at 3,000,000 kilogrammes of argentiferous ore, with a ley of 0·24 per cent. of silver.



OLD COPPER WORKS OF MOROCOCHA, WITH GROUP OF LLAMAS FOR CARRYING ORE.
(*Engraved from Photograph.*)

LIST OF ORES IN THE YAULI DISTRICT.

Gold in pepitas (nuggets) is carried down by the rivers which descend the slope of the second Cordillera towards the Montaña, viz., the Oxabamba and the Tulumayo, both affluents of the Chanchamayo. It is found in small quantities in the veins of quartz which are within the crystalline rocks of that same chain, and in the western in veins of quartz and pyrites near Morococha.

Silver (native) is found principally in the veins of Andaichagua, in specks and crystals of elongated forms called hairy silver, also in Carahuacra and Anticona.

Copper has been observed in specks of dendritic form, in the mine of San Pablo, Cerro Nuevo Potosi.

Arsenic in rounded grains, forming incrustations in carbonate of lime, is found in the mine of Elisa, Cerro Fraguamachay, on the western descent of the principal Cordillera.

Realgar (sulphide of arsenic) is found near Chaplanca, in a quebradita towards the north, in grains and *chispitas*, enclosed in a whitish argillaceous rock.

Stibnite (antimony) *maciza*, is found in large crystals in a vein near Andaichagua, accompanied with horn stone (flint.) It is found likewise in the Carahuacra vein, and crystallised in radiated forms. In the Talisman mine, Cerro Santiago, and in the Elisa mine, Cerro Fraguamachay, the aggregations measure ten centimètres (four inches) in diameter.

Molybdenite has been observed in the quebrada of Piedra Parada, on the western descent of the principal Cordillera.

Argentite (sulphide of silver) is frequent in Andaichagua, Carahuacra, and Toldojirca. In the mass of galena in the latter place it has been found in *papas* (upper oxidised ores), in pieces of eight centimètres, of irregular form, and mixed with earth in small powder. In the veins of Tarantan, to the south of Lake Huacracocha, it appears in rounded grains in the cavities of the quartz.

Galena (sulphide of lead) is one of the minerals which most frequently occur in the district, being present in greater or lesser proportion in almost all the veins and

mantos; in these it is found more or less alone, whilst in the veins it is intimately mixed in large or small particles with pyrites and zinc blende, frequently crystallised in cubical octahedronal forms, both equally developed. It has been found in the form of stalactitic pipes in the Carahuacra mine, San Francisco.

Under the name of *acerillo*, the miners denote a galena which exhibits small leaves, very minute and brilliant, intimately mixed with laminated zinc blende, and which is very rich in silver; that of the San Antonio mine, Nuevo Potosi, contains eight per cent. of silver. This species corresponds to that called by Breithaupt *galena rutilante.*

In Tuctu the cavities or fissures which exhibit pyrites of the before-mentioned manto, there has been found a metal of steel grey colour and metallic lustre, crystallised in groups of tabular form, which show on the surface numerous triangular faces, and small combinations of the cube and the octahedron with truncated angles, showing serrated forms. Señor Domeyko found its specific gravity 6·46 — 6·57, and on analysis to yield :—

Lead	62·17
Zinc	16·59
Iron	1·72
Sulphur	18·28
	98·76

This simple constitution, and its physical properties, make it appear to be a new species; it requires to be more closely studied, if it really be so.

Bourmonite (sulphide of copper, lead, and iron) is found in the Cerro of Chupra, in the district of Marcapomacocha, according to Señor Raimondi.

Alabandite, or *manganblende* (sulphide of manganese), constitutes one of the predominating ores in the vein of San Antonio mine, Nuevo Potosi, accompanied with pyrites and zinc blende, galena, and silver ore, being found there with distinct cruciform aggregations of crystallised cubes, but no well-developed crystals have been observed. They are likewise found in the Buenaventura mine (Yacumina). The miners call it *alcafor.* The analysis of a

sample from the San Antonio mine, by Señor Raimondi, shows—

Manganese	62·76
Sulphur	37·00
Silica	0·12
Iron	trace
	99·88

Zinc blende (sulphide of zinc) is, after pyrites, the most frequently-occurring mineral. It is mostly found mixed with pyrites and with galena. Its ordinary colour is brownish yellow to brilliant black on a cleavage face. It is called *incensiado*. In Sulfurosa, Tuctu mines, and in the Carahuacra vein it occurs of a mulberry-colour, accompanying the rich ore of these veins. It has also been observed in well-developed crystals.

Cinnabar.—It is known only in the Pucayacu mine, in Tunabamba, in grains enclosed in white yellowish sand.

Pyrite (*bronce*).—It is the most common mineral; it is present in almost all the veins, silver as well as copper, mixed with other minerals, and in Tuctu, accompanied with quartz, it forms a gangue mass four mètres in diameter. It is found frequently in the gangue mass of Tuctu; they show crystals of sixteen to twenty milimètres, exhibiting the perfect cube with brilliant faces, without any combination, or the cube combined with the pyritoedre, and others forming pentagonal dodecahedrons, or by the pyritoedre with six of its edges lightly truncated by the cube. It is also found in the Carahuacra vein, as sandy crusts on ruby silver.

Peruvite (*silberwismuth-glanz*) is a rare mineral, discovered in Morococha, and described for the first time by Prof. Rammelsberg (1876 "Monastbericht Academie Wissenschaften," Berlin, p. 700). It is pliable, and of grey colour, its specific gravity being 6.92; its composition, according to Professor Rammelsberg, is—

	1	2.	3.
Bismuth	52·17	49·28	49·90
Silver	25·72	25·17	26·18
Lead	2·58	8·00	4·59
Copper	0·30		
Sulphur	16·33	17·56	
	97·10	100·01	

The difference in the amount of lead, and the fact that the quantity of silver and bismuth change when the former increases, show that the lead does not belong to the combination, but has been mixed with it in the form of galena.

The mineral has been found in small quantity in the Matilda vein, Cerro Nuevo Potosi, accompanied with argentiferous grey copper ore, galena, pyrites, zinc blende, and quartz. Other combinations of sulphur and bismuth show themselves in the quebrada of Piedra Parada, on the western descent of the principal Cordillera.

Sulphide of Freisslebenite (antimony, silver, and lead) occurs in the San Cayetano, an old mine in Anticona, with calcite.

Pirargyrite (*rosicler*, or ruby silver).—Is very abundant, but it is found only in grains or in great and small particles mixed with other minerals; it has not been seen crystallised. In the Carahuacra vein it is accompanied with zinc blende and quartz; in the Volcan mine (Pucaurco), with argentiferous grey copper ore, galena, and quartz; in the Talisman mine (Santiago), with argentiferous grey copper ore, galena, and quartz; it is observed in small quantity in the Buenaventura mine (Yacumina), with argentiferous grey copper ore, pyrites, galena, zinc blende, alabandite, and quartz.

Boulangerite (sulphide of antimony and lead), containing silver, is found, accompanied with galena, in Antarangra.

Tetraedrite (argentiferous grey copper ore *pavonado*).—Is shown invariably to contain silver. When the percentage in silver is considerable—8 to 10 per cent.—the miners call it *pavonado fino*. It is the principal silver-bearing mineral of the Yauli region, since it occurs in the greatest number of veins, in some accompanied by other minerals—principally native silver, ruby silver, and argentite, same as in the Volcan, Santiago, and Buenaventura mines; and in other places being the only ore of value, as in the Libertad mine (Anticona), and in the veins of Nuevo Potosi. Generally it is found mixed with other minerals—pyrites, zinc blende, and galena—in beautiful crystals of the colour between steel grey and black.

Tennantite (arsenical grey copper ore, *pavonado de cobre*).—Is found in the mine of Señor de la Carcel, in the Cerro Cajoncillo, accompanied with enargite pyrites, zinc blende, galena, megabasite, and quartz, and also in

a vein to the south of the Lake Huacracocha, frequently crystallised. Professor Breithaupt has given the ore of the Señor de la Carcel mine the name of *sandbergerita*, because he found some difference in its character from that of the others. The form of its crystal is the tetrahedron combined with the dodecahedron; its cubical cleavage, hardness = $4\frac{1}{2}-4\frac{3}{4}$; specific gravity = 4·369, and its composition, according to Señor Merbach :—

Copper	41·08
Lead	2·77
Zinc	7·19
Iron	2·38
Antimony	7·19
Arsenic	14·75
Sulphur	25·12
	100·48

Meneghinite (sulphide of antimony and silver) is found in the Cerro Chupra, district of Marcapomacocha.

Stefanite (sulphide of antimony and silver) has been found in tubular crystals in the cavities of the quartz of the Carahuacra vein.

Polibasite (antimony, sulphur, and silver, with some arsenic and copper) occurs in tubular hexagonal crystals; it has been observed in the Independencia mine, Cerro Potosi, near Morococha.

Enargite (maciza) in cross-like forms of prismatic crystals, very distinct. It is found in considerable quantity in the San Francisco mine, near Morococha, accompanied with pyrites, megabasite, wolframite,[1] and quartz, constituting the useful mass of the vein; in the Señor de la Carcel mine, Cerro Cajoucillo, accompanied with tennantite, pyrites, zinc blende, megabasite, and quartz. The analysis of Professor Plattner shows :—

Copper	47·20
Iron	0·57
Zinc	0·23
Silver	0·02
Antimony	1·61
Arsenic	17·60
Sulphur	32·22
	99·45

[1] Tungstate of iron and manganese.

Halite (common salt and gemma salt) is found in considerable masses in San Blas, near the town of Ondores, and in the Cerro de la Sal in the Montaña.

Fluorspar is comparatively rare in South America, and does not occur in the veins of this district, but has been found in *laques* or cavities of the limestone, in the cuttings of the Oroya Railroad, two kilomètres south-west of Yauli. It occurs in these cavities in small crystals of calcite, resting upon which there has been found, in some, crystals of fluorine of 10 to 15 millimètres, the cube and dodecadron combined, with salient angles of construction cut short by a tetrakishexahedron, having a beautiful clear violet colour, and it is also accompanied with crystals of quartz.

Hematite (olgiste iron) has been found in small quantity in small fine micaceous iron sheets near Tuctu, towards the south-west.

Magnetic iron ore.—On the southern side of the Lake Morococha there are some veins which contain this mineral in compact pieces, accompanied with quartz.

Manganite.—Pyrolusite and other oxides of manganese enter into the composition of the pacos, frequent in the veins of this district, in those of Nuevo Potosi, whose ley of ordinary silver is of 0·05 to 0·20 per cent. At times this kind of paco has an appearance of scoria, for which it is called *paco choreado*, and contains 8 per cent. of silver.

Limonite, porous and earthy granite, is found on the surface of the *manta* of pyrite in Tuctu, and in spots on the soil in some other places, as near the lake Morococha[1] on the road leading to Yauli. It also enters, with earthy hematites, into the composition of the *Colorados pacos*, as in the Anticona veins.

Stibenite (sulphide of antimony) is found in the Carahuacra vein, accompanied with steinmannite.

Quartz (quijo) is almost the only gangue which accompanies minerals in the veins, being found very frequently crystallised. It is, besides, an essential component of the crystallised rocks of the Eastern Cordillera, and of the sandstones of the eastern, being shown also subordinately in the propilitas.

[1] "Morococha" means "coloured lake."

Rodonite (silicate of manganese) is frequently found in veins mixed with quartz and with rodocrosite, forming with them the gangue which accompanies the metallic ores called *quijo rosado.* This is considered as rich ore, being found associated with argentiferous grey copper ore, containing a high ley of silver.

Anfibol forms part of the propilita[1] and trachyte of the Western Cordillera, being distinguished by its beautiful crystals, that which is contained in the rock being designated as anfibolique andesite.

Asbestos is found accompanied with serpentine and dolomite in the Cerro Nuevo Potosi.

Granite, compact, opaque, dark brown-yellow colour, which changes to green and grey; it is only known in the immediate neighbourhood of Morococha, where it forms a layer of 3 mètres thick. The finer variety of granite is partly constituted by the closely-connected grouping of diminutive crystals; well-developed crystals are also found, very few being transparent. The most common forms are the dodecahedron and the icositetrahedron; likewise they present some combinations of those two with the hexahedron, and of the same with the tetrakishexahedron. Accompanied with the granite are found calcite and quartz crystals.

Biotite (mica) in hexagonal prisms is abundant in the crystalline rocks of the Oriental Western Cordillera, and even in the sandstone and conglomerate near to Yauli, on the north.

Muscovite (Muscovy glass) is found on the crystallised rocks of the Oriental Cordillera.

Feldspar.—The constituent element of the granite of the eastern chain, of the Cordillera trachyte on the chief Cordillera, and the plagioclas (oligoclase, labradorite) of the propilite and trachyte.

Chrysocolla (silicate of copper) is found at times in the copper veins, viz., in the San Antonio mine, Nuevo Potosi.

Talc enters into the composition of the crystalline slates of the Eastern Cordillera.

[1] "Propilita," dioritic trap, composed of plagioclas and amfibol, with mica and grains of quartz.

Sepiolite (meerschaum) is found in the Cerro Nuevo Potosi (Tayacasa), according to Señor Raimondi.

Glaucolite has been observed in a sandstone of the Cerro Alpamina, and in some other stratified rocks.

Serpentine is found with much frequency, forming nodules and small veins of clear grey and greenish yellow in the calcined rocks in the neighbourhood of the Morococha lake. Serpentine is sometimes intimately mixed with calcite; some of the spherical concretions present on the surface of the ground are composed solely of serpentine, the latter being found in the centre mixed with carbonate of lime. The analysis of Señor Paz Soldan shows the presence of carbonate of lime in the sample examined in this locality.

Haloisite.—Compact, of a greyish white colour, is found in the San Pablo mine, Cerro Nuevo Potosi.

Pyromorphite (phosphate of lead) is found in specks and very small crystals, accompanied with galena, in the Manto of Toldojirca. According to Raimondi, it is found in small hexagonal prisms in some parts of the Marcapomacocha district, and in the Cerro Chupra of that same district.

Mimetene (arsenite of lead) accompanies the former in the same Manto of galena, in the form of specks and very small crystals.

Nitratine (nitrate of soda, saltpetre).—According to Señor Galvez, in the *meseta*[1] of Tarmatambo, quebrada of Collana, at one league from Tarma, on the road to Jauja, there existed at the end of the past century a number of surface mines, from which the people of that district extracted saltpetre for making gunpowder. All the works were of shallow depth, not exceeding 2·50 mètres (= 8 feet), with the exception of one which reached 11·70 mètres (= 38 feet 3 inches), in which the saltpetre was found half a yard thick. Likewise in the town of Tapo, in the Acobamba district, they worked saltpetre. In Paz Soldan's "Geography," p. 245, reference is made to the first of these places, classifying the substance as nitrate of soda.

[1] *Meseta* means an elevation with a flat summit.

Megabasite, in flat or needle-like prisms of grey colour yellow to red, the surface longitudinally striated, is found in the copper mines, Señor de la Carcel, Cerro Cajoncillo, and San Francisco, near to Morococha, accompanying enargite and other minerals of said veins. They show also tubular crystals of one centimètre long and wide, owing to the predominance of macropinacoide, the surface of which is vertically striated and ends in an inclined face, or by the half macrodoma. The colour of these great crystals is greyish black, but the prisms, one millimètre thick, are half transparent, of reddish colour. They are arranged in radiated groups. It has perfect brachydiagonal cleavage. Two analyses, made in Morococha, gave the following results :—

	a		*b*
Tungstic acid	74·00	...	75·12
Oxide of manganese	24·51	...	23·21
,, iron	1·49	...	1·42
	100·00		99·75

In *a* the mineral was decomposed, being funded with bisulphate of potassa (determining the tungstic acid by difference) ; and in *b* the decomposition was made by hydrochloric acid. In both cases the bases predominate.

Wolframite.—In the San Francisco vein, near to Morococha, there is found, in company with megabasite, prismatic traces of wolframite, formed by the breaking up of the macro and brachydiagonal cruciform crystals. This wolframite is of opaque blackish-red colour, exhibiting a reddish grey streak, and, with borax, before the blowpipe gives the colour of iron, whilst megabasite gives a yellow powder and manganese reaction in the borax bead. Melted with saltpetre and soda, both give the same reaction.

Scheelite is shown in very small quantity, accompanied with megabasite, in the Señor de la Carcel mine, Cerro Cajoncillo.

Barytine is very scarce in this district. It has only been observed in the Señor de la Carcel mine, Cerro Cajoncillo, in very small proportion, in fine rhombic prisms of two millimètres long, white colour, or striated yellow on the surface.

Anglesite, in beautiful crystals, has been observed

accompanying the galena in the San Antonio and San José mines of the Cerro Toldojirca. It is likewise found in the Cerro Chupra mines in the Marcapomacocha district.

Yeso.—White, of saccharoidal, grainy structure, forms considerable deposits on the stratified rocks of the table-land. It is found in the Cerro Alpamina (at the south of the lake Huacracocha), near the Oroya, at a short distance to the north of Saco, and at two kilomètres from Huaipocha on the road to Tarma. Transparent crystals, of three centimètres, produced from Sincamachay, showed the combination of the prism with the chinopinacoid, the negative hemipyramid and the positive orthohemidoma forming together a pyramid with rounded faces.

Melanterite (sulphate of iron) is found in Tuctu; a powder covering the masses of the surface of the pyrites.

Calcite.—Enters into the composition of the sedimentary rocks, and as such is abundant, but as gangue in mineral veins is very scarce. It has been observed crystallised in the small granite of the neighbourhood of Morococha, and in the cavities of limestone where fluor spar is found in the cuttings of the railroad about two kilomètres to the south-west of Yauli. In form of stalactite (licamancha) it is present at different points on the banks of the river Yauli; and in form of toba, pointed and porous (singa), in Yauli, Chaplanca, and Saco. Parts of pisolitic structure have been found between the *toba* of the baths of Yauli.

Dolomite is shown in the Cerro Nuevo Potosí (Tayacasa), with asbestos and serpentine, according to Señor Raimondi.

Siderite (carbonate of iron) has been found in the San Francisco and Cueva mines, Carahuacra vein, in lenticular crystals.

Rodocrosite (dialogite, carbonate of manganese) forms, mixed with quartz and rodomite, the *quijo rosado*, which accompanies the argentiferous ores of some veins, as of San Antonio, Nuevo Potosi, of Elvera, in the same Cerro, and others. In small rhomboedric crystals, of rose colour, it is shown in the Señor de la Carcel mine, Cerro de Cajoncillo.

Aragonite, in fibrous crusts of white to clear green colour, has been found in the San Antonio mine, Cerro Nuevo Potosi.

Cerusite (carbonate of lead). Its presence is frequent in the veins which contain galena. It has been observed in

beautiful crystals, accompanying said mineral, in the Manto of Toldojirca (San Antonio and Libertadora mines), and the San José mine of the same Cerro.

Malachite and *Azurite* (carbonate of copper) are regular associates of the minerals in the gangue mass of grey copper ore and of galena; on the Manto of Toldojirca both are present very frequently, the azurite in very small crystals.

CHAPTER IX.

On the Minerals of the Ancachs Department.

Translated Extracts from the "Estudio solre Exploration y beneficio de los Minerales del Departamento de Ancachs," by MAURICE DU CHATENET. Lima, 1883.[1]

THE Department of Ancachs is, without doubt, one of the most celebrated for the number of metalliferous veins which traverse its mountains; and, even in the event of there only existing in Peru this single mineral region, it would be in justice considered the centre most favoured by nature, from the point of view of its valuable mineral products. The Cordillera of the Andes in general is rich in mineral deposits of all kinds, but it appears that in this Department there have been more eruptions than in other places, and this has given passage with greater facility to the different metallic emanations in that region; not only the metalliferous veins abound, but also the deposits which offer one of its richest treasures, viz., coal. In this Department there is found nearly all the ores which are utilised in metallurgy, viz., gold, silver, lead, copper, zinc, mercury, iron, antimony, &c., and, besides, numerous beds of coal. Unfortunately, the distance from the coast, and want of means of transport, prevent them being applied to a useful purpose. As in all places, gold is found in two kinds of deposits, in veins, and the old and contemporary auriferous alluvials, which can be always considered to be derived from the auriferous veins of previous origin. These veins are found in the neighbourhood of the alluvials, which have been formed in great part by the rounded stones coming from the *cajas* of fragments of quartz, and of other ores which are observed in the neighbourhood. The

[1] "Anales de Construcciones Civiles y de Minas del Perú." Published by the School of Mines, Lima, 1883.

gold in these alluvials, or *lavaderos*, is always accompanied with magnetite, which leads to the confirmation of the idea that the gold which is met with on the surface is derived from veins, since these latter contain iron pyrites in greater or less proportion, which from analysis is known to be transformed into magnetic oxide. The auriferous veins have opened a passage in the eruptive granitic rocks in some places near the coast, in the mountains to the north of the Department, in the Cordillera Blanca, in the province of Huari, &c. These rocks differ essentially from those which are crossed by veins of silver, by the presence of either mica or quartz. They are chiefly mica, granite, and gneiss; but it is necessary to observe that these granites cannot be considered as of very ancient origin, because in them quartz is at times very scarce, and at others does not exist at all. Its structure is not very crystalline. Crystallised quartz constitutes the principal part of the material which fills the veins of gold; there can also be found in them other ores, such as iron and copper pyrites, grey copper, galena, and blende of different sulphides of antimony. In parts of the vein near the surface there are found oxidised matters, or auriferous pacos, resulting from the maximum of oxidation with the minerals existing below. In the present condition of the place, and the state in which the roads are found, it can be said with certainty that the immense riches of Ancachs lie in its numerous veins of silver, which offer to the explorers of our times and to those of the future an element of work or production of indefinite duration. As sedimentary deposits, the Department of Ancachs shows in some places those of transition—micaceous or talcose slates—lying above the granite rocks, in which there have been traced veins of gold, and which are again found on the other side of the Marañon, where deposits of gold abound; the trias (or new red sandstone) in the valley of the Marañon, where there are many springs of salt water, gives hope of the discovery of gemma salt; the Jurassic deposit, which appears to be the most interesting of these sediments by its extent and richness of ore; the cretaceous rocks above the eastern decline, the waters of which pass to the Atlantic; and the quaternary alluvial deposits.

Whatever may be the nature of the ores, they are almost always accompanied with a gangue of quartz, and are very rarely calcareous or argillaceous. Many veins are found separated from their *astiales* by *salbandas* well defined, which ought to materially facilitate the work of demolition.

From the point of view of its mineralogical composition, the ores may be divided into three great categories—pyrites, galena, and grey copper ore, according as the useful material predominates in the deposit. Besides these three principal classes, there may be added a fourth, the *pacos*, which is a product of the oxidation of the preceding kinds of ores, and which only exists in the upper parts of the veins, and then only at a certain depth.

We will here point out a very important fact, which is general in all the district,—the presence of antimony in all the ores rich in silver. It may be said that there is no silver ore of any richness which is not antimonious. There have been in the metallic emanations which have contributed to the filling of the veins, a union so great between silver and antimony, that ores which yield only antimony as the constituent metal, and which have not been found argentiferous in other parts, as stiblite, show a ley of silver which reaches at times to one thousandth. However, this simple sulphide never forms rich ore; the kinds most argentiferous are the complex and antimonious sulphides. It is in these that the function which antimony performs can be more readily perceived, and to better prove the enrichment which its presence originates. It is easily proved, that all the deposits in which iron or copper pyrites, and pure galena, exist alone, are always poor, and that they become rich when in the same vein the ores indicated become antimonious; and it is on that account that in certain veins, *tabicados* (rubannés), the present workers do not break down, and only treat the antimonial zones. This, it appears to me, is a very important observation, because it gives very useful indications in the working or in the exploitation of mines, and likewise because in that which refers to the metallurgical treatment of the ores, it will be necessary to be always taken into consideration to select the most advantageous methods.

The veins of pyrites are industrially the least worthy

interest, because they are the least rich in silver. They may contain iron or copper pyrites, and frequently both at the same time. When there are only these two metals, the richness rarely reaches twenty marcs per cajon; the same happens when copper only exists in a state of sulphide, simple or mixed with iron pyrites. At times it is sufficient, the presence of streaks of grey copper, to increase the richness very much. Certain veins contain large masses of almost pure galena; in this case, as in the preceding, the richness of silver does not exceed some twenty marcs the cajon. The galena is generally accompanied with other ores; pyrites, zinc blende, sulphide of antimony, and grey copper ore; the two latter always enrich it considerably.

Antimonious galena is always richer than pure galena, especially when it contains a little grey copper ore; in this case it is generally a little auriferous. When these two conditions are combined, the galena contains a ley of from 30 to 35 marcs per cajon, and often of 60, 100, 200 marcs, and even more, as can be seen in the veins of Huapula, near Pueblo Libre, of Huancapeti, of Collaracra, near Recuay, and of Muta-burros, on the Patara mountains, near Macate.

The richest deposits are those of grey copper ore, or *pavonado* (argentiferous grey copper ore), as the Peruvian miners call it; this ore exists in them only rarely, and is almost always mixed with other kinds, the most frequent being iron pyrites. Its ley of silver is almost always above 40 marcs, and often exceeds 80 to 100; it reaches at times 300 to 400 marcs, and even more.

The *pacos* are minerals of earthy and lithoide appearance, in which all the materials have suffered a complete oxidation. They proceed, without doubt, from the preceding kinds, and they are found in the same deposits as they are, but only in the parts near to the *buzamientos*. Knowing the nature of the ores below, it is easy to deduce that of the pacos on the surface. The metals are oxidised, and the sulphur has disappeared when it has not been able to form sulphates undecomposed by the heat. It is thus that iron pyrites has been converted to peroxide; copper pyrites, a mixture of oxide of iron and oxides and carbonates of copper; the galena, carbonate and sulphate of lead; anti-

mony, which yields by its oxidation an acid product and a fixed one, has formed combinations with the metallic oxides, different antimoniates, which may be observed in the pacos of the antimonious veins.

We observe that all the pacos are more or less hydrated, and that the structure of the veins in the oxidated parts has experienced incontestible changes, losing its regularity and its symmetry; the filling up has a confused appearance. The richness of the pacos is naturally in proportion with that of the sulphurated materials, which exist at a great depth, but with some exceptions it may be said to be almost always inferior

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COAL DEPOSITS IN THE ANCACHS DEPARTMENT.

On the contrary to what happens in other places of the Cordillera, where the progress and development of the mining industry are kept back for want of fuel, this region is one of the richest in coal, as if nature had designed to give it, at the same time with its magnificent metallic mines, the most useful element to enable it to withdraw profit from them. This stratum of coal cannot be regarded as belonging to the carboniferous formation, properly so called, as it is found in the Jurassic sandstone, that is to say, the deposits which are richest in veins. Thus, as in the metallic mines, coal unfortunately does not exist on the coast, but all the provinces of this Department are abundantly provided with it, especially that of Huaylas, where there is a populous district, near the principal towns, and in mining districts which, without doubt, will have a great future.

The principal places of exportation of ore are from the mines of Pasacancha, in the province of Pomabamba; Cajavilca, in the province of Huari; Huallacanca, in that of Cajatambo; Huancapeti and Collaracra, near Recuay; Coyrosho, Huapula, Colquipocro, near Caraz; and Palara, near Macate.

The greater part of the mines are at a distance of one to three leagues from the river Santa, and three days by road from the ports of Huarmey, Casma, Tamanco, and Chimbote.

PROFESSOR ORTON ON THE ANCACHS MINES.

Professor Orton says :—"The most numerous and promising silver mines in Peru are, without doubt, located in the Department of Ancachs, just north of Lima; not because it is a richer region than the Eastern Cordillera, but because it is the only district which has been scientifically explored. This has been done by the accomplished naturalist, Professor Raimondi, under the patronage of Mr. Henry Meiggs. The report recently published at Lima contains assays of specimens from the most valuable mines in which the silver occurs. It appears (1.) that silver is not very common in the native state; (2.) that the minerals richest in silver are pyrargyrite (rosicler, or ruby silver), and stephanite (brittle silver glance); (3.) that the greater part of the silver, however, is extracted from tetrahedrite, galena, and many mineral oxides (*pacos* or *colorados*); the pacos richest in silver are those which result from the oxidation of stephanite and pyrargyrite; the poorest are found in the great part of oxide of iron, in which the silver is minutely disseminated in the native state; (4.) it is worthy of notice that the silver ores are constantly associated with antimony. Even the galenas, having a cubical structure, always contain a small percentage of antimony. In general it may be said that the silver of Peru, as of Chili and Bolivia, whether native or in the form of chloride, sulphide, or amalgam, occurs chiefly in the oolitic and porphyritic series near intrusive diorite.

"Some specimens from Ancachs show the maximum yield of a variety of ores :—native silver, with arsenuret of silver, panabasite, pyrites, and blende, 4,284 marcs to the cajon; argentiferous tetrahedrite with pyrargyrite, free from gangue, 1,966 marcs; argentiferous tetrahedrite, malachite, and azurite, 500 marcs; sulphide of antimony, silver, lead, copper, iron, and manganese, 606 marcs; antimonial silver, lead, and copper, with chrysocolla, 524 marcs; cerusite, with antimonial silver, lead, copper, and iron, 756 marcs; antimonial silver, lead and iron, with sulphide of silver and antimony, 680 marcs; argentiferous tetrahedrite, with

galena and blende, 676 marcs; malinowskite—crude, 572 marcs, pure, 1,191 marks; argentiferous antimonial silver, 312 marcs; sulphide of silver in composition with galena and anglesite, 712 marcs; anglesite, chloride of silver, and antimonial lead and silver, 560 marcs; argentiferous galena and tetrahedrite, 532 marcs; argentiferous jamesonite, 340 marcs; antimonial silver, lead, copper, and iron, with cerusite and malachite, 408 marcs."

THE MINES OF SALPO, QUIRUVILCA, AND HUAMACHUCO.

Extract translated from a Report of M. D. ESTEVAR DELSOL, *dated Lima*, 1880.[1]

These mines, situated in the provinces of Otuzco and Huamachuco, in the Libertad Department, were surveyed by M. Delsol in 1878.

The rocks which form the ridges, comprised between the sea and the Sierra, from Trujillo to the vicinity of Challacocha, four leagues from Otuzco, are in great part syenites. Sometimes there are found diorites on the road, called "*Siete Vueltas*" (seven turns), which follows the left bank of the river Moche, as occurs near the town of Poroto, between Trujillo and Poroto. These ridges are not very elevated until after passing Poroto, where they begin to rise considerably, and on arriving at Challacocha the syenitic ridges may be estimated at an altitude of between 2,000 to 3,000 mètres.

Before arriving at Challacocha the stratified rocks begin to appear, which form all that part of the country, and extend from that place to Huamachuco from west to east, and from Llaray to Usquil from south to north; these stratified rocks probably extend to the Marañon. The aspect of the country is worthy of notice. The traveller on leaving the syenitic hills passes through very rugged places and very deep ravines; the river runs between two rows of hills, which are so narrow that there is hardly room for its

[1] "Anales de Construcciones Civiles y de Minas del Perú." Published by the School of Mines, Lima, 1883.

channel; the altitude of these hills may be estimated at about 1,000 mètres (3,280 feet) from the level of the river. On the road from Usquil to Otuzco there is a quebrada, called Quebrada Honda (deep ravine), a name it well deserves, the mountains which form it being at the least 1,500 mètres (4,926 feet) high from the bottom of the ravine. The same configuration is observed within five or six leagues from Challacocha, between Otuzco and Quirivilca, and there begins what is called the *jalca* or the *puna*, an elevated plain or plateau, very extensive, the elevation of which is about 3,500 to 4,000 mètres, or about 11,796 to 13,125 feet. At this place the quebradas (ravines) are seldom met with, and those that do exist are not deep, and it is difficult to meet there any regular decline whatever; a greater part of the water proceeding from the rains or springs cannot flow, and remains stationary in low places, giving origin to numerous pools and lakes.

SALPO.

The mineral deposit of Salpo contains an unlimited number of veins and fissures, of which very few are at the present time working; among them may be mentioned those of Salpo, Millhuachaqui, Salpito, and of one or two veins near Millhuachaqui. The Salpo vein is the most important vein of the country. It has been explored over one and-a-half leagues (four miles) in extent, from the bank of the river Moche, where it appears up to Cochaya, to the south-east of Salpo, where it disappears; however, at Urumalqui, two leagues beyond, another vein is met with, having the same course as that of Salpo, and the appearance and composition of which led the miners of the country to think that it is only the prolongation of the Salpo vein, so that it would thus have a known length of over three and a half leagues (about nine miles). The thickness of this vein is as notable as its length, being, at the smallest dimension, five yards, and measuring at times eighteen. The principal vein has a width of seven or eight yards, and separated from it by sterile parts are two small veins, which probably unite with it lower down. Besides, many other veins are met with, so that many miners consider this vein to be not a single vein, but a conjunction of

veins running parallel. The course is north-west to south-east, and its inclination 90°, that is to say, it is almost vertical.

The Salpo hill is situated at the limit of the stratified rocks, and is formed of the green sandstone on the surface; below follows the Alimosca (so called from its porphyritic-looking rock), with an eruptive appearance, very characteristic; and, lastly, the syenite, in which the various mines are situated below that of Salpo, the veins of which we will speak of hereafter. The nature of the ore varies with the depth; on the surface the small quantity which was taken out at the commencement of the working of the Salpo vein contained a considerable amount of gold, for which reason alone they only refined this metal; but soon afterwards the quantity of gold diminished, whilst that of silver rapidly increased, so that the miners refined the latter metal. The ore which replaced the *paco*, contained in great part quartz with copper pyrites, or sulphate of copper simple or complex, the gangue being always very abundant in the principal vein. Sometimes in the sterile parts are found some small veins, very rich but very narrow, it being always observed that the narrow veins are usually much richer in silver than the broader ones; generally in the same vein the wide parts are richer than the narrow parts.

After the copper ores, the miners meet with, at a depth of about 40 to 50 mètres (132 feet to 164 feet), galena, which afterwards becomes very abundant. The latter being of little ley, and the miners not knowing how to convert it in the reverberating furnace, and to refine it afterwards for amalgamation, nor to refine it directly by smelting, they abandoned the mines where it appeared, as by example, that of Carabamba. By this it will be seen, as Señor Raimondi says in his work upon the mines of Peru, that the rocks which form the *cajas* of the vein have a considerable influence on the nature of the ore, galena almost always appearing in the *cajas* of the eruptive rocks. The following is a list of the mines on the Salpo vein :—

Mirador de San José.—This mine extends for 40 yards in the vein, and is 5 mètres thick. The ore was *paco*, afterwards sulphates, and finally *galena*, and yielded 6 to 7 marcs per cajon. It is abandoned.

Alta Gracia.—Worked 40 yards in the vein; abandoned.

La Cruz.—Worked 40 yards in the vein; width of vein, 5 mètres; also worked in two small veins. Ore—pacos, sulphates, galena. It yields from 10, 20, to 30 marcs per cajon. It likewise yields gold, as do nearly all the Salpo ores. They extract from each cajon one ounce of fine gold, by means of grinding. By the machines, with the *sutil*, a little more is extracted. It is being worked at present in two shafts, about 60 to 70 mètres (197 feet to 230 feet) deep. The others are inundated.

La Merced.—Worked 80 yards in the vein; abandoned. It fell in many years ago by bad working, and after the falling-in, or *sallamo*, as they call it, they continued widening and penetrating in the nearest mines. Now it exhibits a cavity of 80 mètres long, 12 or 15 wide, and 40 deep. When it fell in they were extracting ores yielding 60 marcs, but generally it did not yield more than 12 marcs. The width of the vein is 7 mètres (23 feet), and the ore is the same as that of the La Cruz mine.

Carabamba.—Mine not worked; 100 yards in the vein. The same ore as in the above. The shaft reached water at the same time as the galena and copper were met with; the ley did not exceed 10 to 12 marcs. It gave a regular ore, from 10 to 80 marcs, in great abundance, with parts yet richer. Width of the vein, 7 to 9 mètres; shaft 75 mètres.

La Descubridora.—Two hundred yards of shaft in the vein belonging to Señor Solar, who is now working it. The same ore as the previous mine. They also find the *acerillo*, which they call a pavonado (argentiferous grey copper ore, with steel and shining specks), the ley rising to 50 marcs. The ore regularly yielded from 10 to 20 marcs. The shaft is under water. One working only, called the *Azules*, the ore being bluish at some 30 yards deep.

La Lumbrera:—Two hundred yards in the vein; unworked; under water. Ore like the preceding, but much poorer. It does not yield more than 10 marcs in the richest parts.

Portugal.—Has a shaft of 200 yards sunk into the vein, and belongs to Señor Muñoz, who for some time worked it for copper, the ley being from 15 to 22 per cent. The

ore also contains a little gold, and about 6 marcs of silver. Width of the vein, 10 mètres; tunnels, 20 mètres.

Crudista.—Width of the vein, 10 mètres. Pacos and sulphates of 6 to 8 marcs of ley.

Near Cerro de Salpo are small mines, amongst which *La Resurreccion*, about 3 kilomètres ($1\frac{3}{4}$ miles) from Salpo, worked by Señor Huauy, contains copper ore which produces up to 100 marcs to the cajon from smelting and 75 only from crude. It is from 5 to 6 centimètres wide.

Millhuachaqui.—The Cerro of Millhuachaqui is crossed by several veins; the principal is Millhuachaqui, known for the regularity and quantity of silver it produces. Its ley gives 6 to 8 marcs. Often rich parts are found giving 30, 40, and 60 marcs. There are thirteen mines in this vein.

San José.—Abandoned on account of inundation. The ordinary ore yielded 100 marcs. It was very common to meet with the *accrillo* and the *polvorillo* (sulphate of silver), which is still found in parts where they are working. Native silver is also found, in pieces exceeding one pound in weight. It is possible that it would be profitable to endeavour to drain out the water and to renovate the mine.

La Descubredora.—Vein 2 mètres to $2\frac{1}{2}$ wide; pacos and sulphates of 20 marcs; inundated.

El Carmen.—Vein 2 mètres wide; pacos and sulphates of 12 to 20 marcs; inundated.

Concepcion.—Vein 25 mètres; pacos and sulphates, 8 to 30 marcs. Not worked.

La Esperanza.—Vein 1 to 2 mètres. Ley of ore 12 to 60 marcs. Inundated at 80 mètres from the surface.

Ell Turgo, San Teresa, La Victoria, El Rosario, San Jeronimo, Yankee Doodle, San Domingo, and Shalgon, containing leys of 8 to 15 marcs. Not worked.

Salpito Mine.—The vein is 40 centimètres wide. The ore consists of *accrillo* and *negro;* its ley is from 30 to 70 marcs, its passages reach to 50 mètres. It is at present not worked.

Pique de Salpito.—Vein 40 to 50 centimètres; ore, black—accrillo and polvorillo (sulphate of silver). It contains gold. Its ley of silver varies from 30 to 300 marcs; that of 300 is what they call *pavonado fino.* At present they are

working a piece of ground containing an average of 150 marcs. This mine is better worked than all the others, the owner having adopted the European system. There are twelve workings, with fifty labourers in each.

Achupillai.—Separated from the others by a ravine; vein 50 centimètres, ley 15 marcs. Mine not worked.

QUIRUVILCA.

Quiruvilca is situated at the south-west of Otuzco, about 10 leagues from the town, in the highest point of the *Puna*, and near the road from Huamachuco to Otuzco. The composition of the ore is as follows:—On the surface, as in all the veins of the country, pacos are found to 20 mètres of depth; copper pyrites, with *panizo*, the name they give to the white argillaceous earth, which comes, as is probable, from the same stockwerk of the veins. Afterwards some small parts of pavonado, mixed with copper and iron pyrites. Lastly appears the pavonado, always mixed with pyrites.

The gangue is composed of quartz and of sulphate of baryta with panizo. Quartz is found in greater quantity with iron pyrites, whilst, when blende is shown, sulphate of baryta predominates. The miners have noticed that the sulphate of baryta is generally a good ground for silver, that is to say, the ores which contain much sulphate of baryta are rich in silver, which applies, according to Señor Raimondi, to all the Peruvian ores. All these ores are much richer than those of Salpo and Millhuachaqui. The galenas yield 25 to 30 and upwards marcs by smelting, owing to the presence of a small quantity of pavonado. Nearly all the ores contain gold, principally near the surface. Plata Pina, of the S. Andres mine, has 1 per cent. of gold. They only refine the ores containing 15 marcs per cajon.

The cerros which form the mineral deposit of Quiruvilca are the following:—The Cerro of Midipuida, with the mines Midipuida, La Peña Colorada, La Merced Grande, La Merced Chica, all working at the present time; the Cerro of Llacapucio, with the mines of San Pedro and San Pablo San Andres, San Francesco and Jesus, in actual work; the Cerro of Chonta, the Cerro of Casa Pablo, the Piedra Parada, with the mine of same name, the Papelillo, the

Cruz-pampa, the Torao, the San Lorenzo, San Felipi, San Antonio.

The vein of La Peña Colorada gives galena, zinc blende, and with pyrites and a little pavonado (argentiferous grey copper ore), 20 marcs. The La Merced Grande Mine is the most important of all. It has six workings, and twenty workmen. Its pits are 70 mètres deep, and one under water. The mine is drained by two tunnels. The ore is pavonado (argentiferous grey copper ore), with zinc blende, and yields, on an average, 40 marcs the cajon. San Andres gives 30 to 35 marcs on an average. A sample of good ore from this mine has given by the Coppel test as much as 190 marcs per cajon.

The Papelillo ore yields 20 to 25 marcs. All the veins are narrow, with few exceptions, seldom exceeding 40 centimètres wide. The greater part of the mines are not deep, on account of water appearing very quickly; without doubt the water could be easily drained, as Quiruvilca is situate in the highest part of the Puna. In summer the mines are almost dry, and many which in winter are not worked have workmen in them in summer. With simple machinery all could be drained, but as there is such an abundance of good ore, nothing is more easy to commence a new mine when one is charged with water; it is for this reason we see so many mines abandoned.

THE GOLD MINES OF HUAMACHUCO.

Huamachuco.—The veins in the neighbourhood of Huamachuco are very numerous, and the mines of this province yielded much gold in the time of the Viceroys. At the present time, in the neighbourhood of the town, there is no work going on, except in the Cerro de Toro. This Cerro is situated about one league (three miles) from Huamachuco, towards the Marañon, and consists of two distinct formations; the south-west part is formed of sandstone quartz, it is the least in altitude and extent; the other part, towards the north-east, is formed of green sandstone, which has the same appearance as in Quiruvilca, so that in this cerro the separation of the two classes of rocks is clearly seen, which can be observed as far as the Cerro Negro, and even farther. It is necessary to study with some

attention the aspect of the country, and compare it with that which is observed in the Puna, to be able to affirm, as we have done, that the quartz is anterior to the green and purple sandstones. Up to the present time the Cerro del Toro mines have only produced gold; but it is probable that if the work is continued silver ores may be met with, because there, as in Salpo, it happens that the auriferous pacos which are found on the surface are replaced by degrees by pavonados (argentiferous grey copper ores), or sulphates of other metals. In the part of the cerro containing quartz the auriferous paco forms three very distinct veins—two near the extremity, and the third towards the interior, near the separation of the quartzose and green sandstone. Besides the veins, there are *hilitos* (small threads), which cross them but have been but little worked. The direction and inclination of the veins are the same as that of the *capas* (stockwerk) of the rock, so that they may be called *vetas-capas*. The direction, east and west, is pretty regular, but the inclination varies at each moment. The width is half a yard, on an average. In the part of the cerro where the green sandstone is found, it cannot be said that the veins are well formed, the rock being traversed in all parts by numberless *hilos* (threads), fissures, and small threads, forming a vast network which completely covers it. Some of them have a regular ore, but are generally poor, the ore being found good only in the points where the veins meet; but the threads and fissures being so numerous, the points of meeting are also plentiful, so that the conjunction gives a very good ore Some of the threads are a little wider than the others, measuring five and sometimes ten centimètres (four inches), in which case the inclination and direction is generally more regular. There are two mines in this cerro at present working; one in the sandstone quartz, which follows a very narrow fissure of one to two inches wide, and the other in the green sandstone, which follows a pretty regular fissure about ten centimètres (four inches) wide. In the former the paco disappears, and has been replaced by pyrites and pavonado (argentiferous grey copper ore); at the same time the fissure has become wider, measuring ten to fifteen centimètres, and affording pyrites with spots of pavonado and

specks of *polvorillo*. In the latter almost the same thing h occurred. In the shafts the pavonado begins to be visib with copper pyrites as the paco diminishes; these ores a found in the cajos, which are mineralised, but it is probal that afterwards all the fissures may have filled, it bei possible then to work it for silver.

The greater part of the gold produced in Huamachu comes from the Indians, who occasionally refine the o and extract sufficient gold to enable them to buy agu diente and get intoxicated. The Cerro Negro is travers by numerous veins, the tracings of which are seen in t slopes and on the summit of the cerro. We have alrea said that its composition is the same as that of the Ce del Toro—that is, sandstone quartz on the west and gre sandstone on the east.

The veins have galena and pavonado, but the pavona of the Torro Cerro is a lead pavonado, and very diffic to refine, as we have already said referring to Quiruvil it is crude, principally on account of the quantity of le and antimony it contains, and although at times it is v rich, the miners do not derive any benefit from it.

M. Delsol visited two pits, the first situated upon a ve the course of which stands north and south, 80° to the ea It is very extensive, its inclination being about 45° to t south. They call it Colpa Blanca A paco was work upon the surface, and afterwards a pavonado, the ley which produced 130 marcs by Cupelation. It was ab doned, water having been met with.

The other pit is La Gedinda, the direction of whi is north-east to south-west, with an inclination of 7 towards the north. This vein yields a lead pavonado, t ley of which is 150 marcs per cajon, according to t miners of Huamachuco. Not being able to extract more th seven to eight marcs by amalgamation they abandoned i

In the Tambello mine, situated on the Tambello Cer at 45 miles to the north-east of Salpo, three very narr fissures of pavonado ore were worked, but very rich, th width not exceeding 5 to 6 centimètres; the cajas bei very hard, the working is difficult and costly; however, t ley of the ore is very considerable, yielding 400 marcs p cajon, permitting the payment of all the expenses.

Joined to this mine there is that of Chinchin, also pavonado, 40 centimètres (16 inches) wide, with a ley of 120 marcs.

In Igre is situate the Milagro mine, which has given a metal of 360 marcs.

In Aguiñuay, two leagues from Santiago de Chuco, there are many galena mines of 80 marcs and 50 per cent. of lead. Two are at present working; the ore is refined in reverberating furnaces.

In Cochaida, 4 leagues from Quiruvilca, there are some pavonado mines of 120 to 130 marcs, which belong to Señor Calinge, and are being worked.

On the road from Quiruvilca to Llaray, on arriving about half way, there is a cerro of sandstone quartz, already mentioned, called the Pedernal, where gold is found in consideral abundance with the paco; there are various excavations in this cerro, but all abandoned on account of the very hard rock.

COAL MINES.

Coal is very abundant in the province of Huamachuco. There are numerous beds of this combustible of considerable thickness found in the sandstone quartz.

There are seven or eight beds of coal at present worked, and those known are much more numerous. Near Huamachuco there are two mines worked which are 1½ mètre and 2 mètres thick respectively; in Llaray, the stratum which produces coal is in its narrowest part 4 mètres thick. Near the Victoria smelting works coal is mined for smelting the ores.

In conclusion, it may be said that there is more coal in the province of Huamachuco than the whole of Peru could consume in a thousand years; consequently, it is not the difficulty of finding fuel, but of finding a method of refining, in which coal can replace such expensive articles as quicksilver and salt.

CHAPTER X.

The Gold Mines of Peru.

THE wealth of Peru has always been proverbial in precious metals, and, with regard to gold, it is sufficient to consult the ancient historians to gain some idea of the quantity of this precious metal, the existence of which was shown by the many objects of art which were found in the temples of the Incas at Cuzco, Paccha-Cámac,[1] and other places at the time of the Conquest, and as also by the large amount of gold which the unfortunate Inca, Prince Atahualpa, gave for his ransom at Cajamarca.[2] Gold is found in almost all parts of Peru, in the low lands as well as in the high peaks of the Cordilleras.

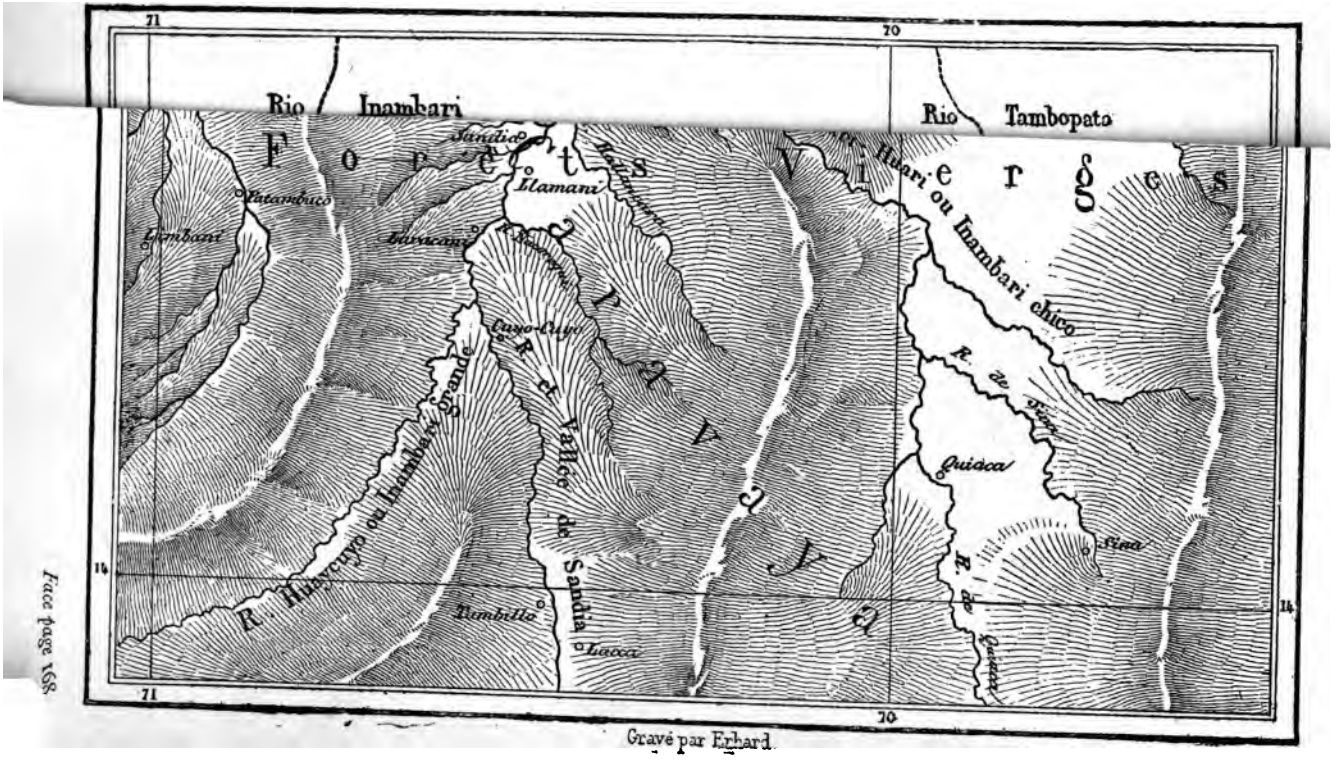
THE GOLD MINES OF CARABAYA.

The provinces of Carabaya and Sandia, situated in the department of Puno, in the elevated regions of southern Peru, are both exceedingly rich in gold. The following extracts from Professor Raimondi are, by his permission, translated from his treatise on the "Minas de Oro de Carabaya," published in the "Anales de Construcciones Civiles y de Minas del Perú." (Lima, 1883.)

The discovery of gold in Carabaya is attributed to some Spanish fugitives from the armies of Pizarro and Almagro in the days of the Conquest, who appear to have been the

[1] Paccha-Cámac signifies "He who created the world out of nothing," from *paccha*, "the earth," and *camac*, the present participle of *caman*, "to produce something from nothing." The doors of this temple were of gold, richly inlaid with precious stones and coral.

[2] Prescott says, p. 3. vol. ii. :—"The amount of gold the Spaniards took from the Incas was three and a half millions sterling."



Gravé par Erhard.

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founders of the opulent town of San Juan del Oro In the year 1553 the discoverers carried to Spain as a present to the Emperor, a large nugget of gold in the form of a horse's head, weighing 4 arrobas (100 lb.), which was found in the first washing place at Inahuaya.[1]

Writing in 1553, Ciezo de Leon speaks of the gold of Carabaya in these terms:—"In the Serrania mountain is situate the renowned and exceedingly rich river Caruaya, where in former years more than 1,700,000 dollars of gold was extracted."[2] It was in 1849 that the cascarilla gatherers discovered large deposits of auriferous earth in the Quebrada of Challuma, situated on the river Huari-huari, which lower down its course bears the name of Inambari, and receiving all the rivers of the province of Carabaya and Sandia, flows into the Beni. The river Challuma takes its name from the point of its fall into the Huari-huari, up to a place called Quimsamayo, distant a little less than three leagues, at which place the river Challuma is formed by the union of three streams—the Chaupimayo, the Quimsamayo, and the Pucamayo. All the auriferous deposits discovered in 1849 and 1850 were in the Quebrada of Challuma, and its affluent, the river Pucamayo. The names of the places where gold was found, are:—Pusupunco, San Simon, San José, Cangali, Cementerio, Alta Gracia, from which Señor Don José Poblete extracted an immense quantity of gold, obtaining 43 ozs. from a single trough of 15 lb. of earth; and lastly, Quimsamayo, where gold was discovered in 1849.

The places where gold was found in the Quebrada of Pucamayo are:—Natividad, situated near the union of the Pucamayo with the Chaupimayo; Tablahuasi, a short distance above Natividad; San Pedro, at two cuadras above Tablahuasi, from which Señor Don Miguel Arias extracted a nugget weighing 27 ozs., and from one trough of earth 3 lb. 5 ozs. of gold. Further above are Santa Fortunata and Mercedes; in the latter Señor Rodriguez found a nugget weighing 40 ozs.; Media Luna, which produced a nugget of 29 ozs.; Puerta Libre, Rosario, where Señores Carpio, Teran, and Lira found a nugget weighing 36 ozs.; and

[1] Cosme Bueno—"Ephemeride, del año 1768,"
[2] Ciezo de Leon—"Chronica del Perú," cap. cii.

lastly, Carrizal, which also yielded a quantity of gold. Less than a mile distant from Puerta Libre, is the Cerro de Ccapac-orcco, or Montebello, where gold is found in veins. An immense deposit of auriferous land extends three leagues from the hills of Comuni and Ananea to the Potro. All the deposits of auriferous earth lie upon slate and sandstone, which are generally disposed in vertical layers. No machinery has been brought to bear upon these mines, owing to the difficulty of transport; they are worked in a very primitive manner, viz., by the quimbalete, which consists of a kind of mill formed by a large stone, with a cavity in which they crush the ore by means of another stone, which is usually put in motion by means of the feet. The difficulty which exists for crushing the quartz is so great that the miners prefer to extract the gold from the alluvial soils, the working of which is much more simple, and it can be carried on a large scale, when a considerable quantity of water is used.

The following is the method of working gold from the ancient alluvial soils in the province of Sandia. When a deposit of auriferous earth is discovered, or, as they call it, *rebosadero* (an older alluvial deposit), which is not always easy to find when the land is covered with a dense vegetation, the first operation which has to be performed is to remove the *carga*, that is, the part formed of earth and sterile stones, which covers the auriferous deposit called *venero*. As the carga is at times more than 50 mètres (164 feet) thick, it is necessary to employ a convenient method to get rid of this immense deposit of useless soil. For this purpose water is conveyed by means of an aqueduct from a river, situated at a higher level. The water is, by means of the aqueduct, stored in a pond, to which they give the name of *cocha* (which in the Quechua tongue means "lake"). This cocha is provided with a flood gate, to open and let out the water as required. When the gate is opened the water rushes forcibly upon the ground, carrying away with it a large quantity of earth and stone.[1] Men with bars break up the soil, to facilitate its being carried away. These operations are continued until the

[1] A method used largely in California, where they make high reservoirs, with flood gates, and wash down sections of mountains,

auriferous ore layer is reached, which is recognised by the appearance of stones, bearing margajeta and huincho (iron pyrites and oligist).

GEOLOGICAL FORMATION OF THE GOLD REGION.

The predominating rocks in all the Nevada Cordilleras, which traverse the provinces of Carabaya and Sandia, and the ramifications of this great chain which form the numerous quebradas of these provinces, are argillaceous talcose slates belonging to the silurian formation. These rocks are found in an upright position, standing on edge, varying very much as to their direction and inclination, but generally almost vertical, rising at times like gigantic, sharply-cut walls. A very noticeable example of this disposition of the layers of slate is observed about a mile beyond the Tambos of Pucaruma, on the road from the town of Quiaca to the Quebrada of Tambopata, where the rock is in the form of a vertical wall over 150 mètres (492 feet) above the ground. These slates, in many parts of the Crucero road, to the mines of Challuma, are more or less metamorphosed, that is, they are formed by the injection of silica into them, and do not show that laminated structure which generally characterises them. The most notable example of the metamorphism of the slate is observed in a pass situate at two leagues distant from the town of Phara. In this place the slate, without losing its stratification, shows an almost crystalline structure, with grains of quartz and feldspar, and laminæ of mica; so that it forms an intermediate link between sedimentary and crystalline rocks.

The most common phenomenon which the slates in the province of Sandia and Carabaya present, is that they are found in distinct connexion with the veins of quartz, more or less auriferous, as can be seen between the Tambos of Uco and Huaturo, between Phara and Humabamba, in the Cerro de Ccapac-orcco, or Montebello, in the Cerro Ananea, near Poto, &c. &c. Slates are not the only sedimentary rocks present in the auriferous region of the province of Sandia, but there is also observed a species of grauwack and old sandstone in distinct

colours, varying from white to yellow, and red, and large deposits of earth débris. The sandstone resting on the slate is commonly presented in vertical layers, more or less metamorphosed. The principal places in the province of Sandia where the sandstone appears are near the Tambo of Uco, and a league below Uco on the road from Phara to Challuma, also a mile below the town of Sandia; and near the river Huari-huari, in the great valley, in the vicinity of the town of Poto, and near the lake of Comuni, at the foot of Cerro Ananea.

The alluvial earths under consideration are the most important, since it is from them that nearly all the gold has been extracted. Almost the whole of the enormous quantity of gold which the province of Sandia (formerly Carabaya) has produced has been obtained from the alluvial earth. These lands divide themselves into ancient and recent alluvial deposits. We may classify amongst the former the great deposits of auriferous earth formed in remote periods, and which are now found at a higher level, above the present beds of the rivers; and amongst the latter, the débris which the rivers and lakes deposit at the present time.

It is from the ancient alluvial that the precious metal is extracted in the neighbourhood of the celebrated villa of San Juan del Oro, in the old mining district of Aporoma, situate between the rivers Machica-mani and Pulipuli, in the districts of the Quebradas of Challuma and Pucamayo, and they are also still extracting at Poto. All these deposits of auriferous earth rest upon slate and sandstone, which rocks are generally found deposited in vertical layers.

To form an idea of the origin of these rich deposits of auriferous earth, it is necessary to suppose that in some localities, as can still be observed, the layers of slate had a transverse direction to the quebradas, thus forming a dyke which held back the water from a great extent of country, forming in this way a great lake, whose waters rose to the summit of the natural barrier. The river which carried along in its current the gold and stones contributed its waters to this lake, which, by the action of the water, loosened the veins which were found in its course. The gold, with the stones and the earth, entering the lake, were deposited at the bottom according to the order of their

density, so that the precious metal went, by degrees, accumulated at the bottom of the lake, at the same time as the earth and rounded stones were again filling the cavity. Later, either by the continual erosion of the water above the layers of slate which were forming the transverse barrier, or by an accidental cause which might have broken the natural dyke, the water of the lake found an escape and left dry the great deposit of earth and gold which had accumulated at its bottom. If, now, the water of the river which flows down the quebrada, passing over this great deposit, should go on excavating in its course, the continual action of the water will cause it to wear itself gradually deeper until, reaching the naked rock, it will form on one side, or probably on both sides of the quebrada, a deep fissure of auriferous earth above the actual level of the river, as those which have been worked lately on the Quebradas of Challuma and Pucamayo.

In the mining district of Poto, the deposit of auriferous earth appears to have been formed in a distinct manner, since it offers some peculiarities which have been observed, that the stones and the gold have not been deposited in water, but that they have come dragged along in the form of clay. This immense deposit of auriferous earth extends from the Cerros Nevados of Comuni and Ananea up to the town of Poto, and is some three leagues in length. This land does not possess the reddish colour which is noted in almost all auriferous lands, which is owing to the peroxide of iron. The auriferous earths of Poto are of grey colour, and are formed of quartz stones, slate, and a metamorphic sandstone, accompanied with a marly earth. If we observe the stones which form this land it is seen that they have a not very rounded form, so that we can deduce that they have not rolled much, and, consequently, the gold which this land contains has not come from very far. On the other hand, the marly nature of the land and its inclined position, and the heaps of stone which it occasionally contains, show that these have not been deposited in tranquil water. Lastly, if this auriferous earth had been deposited in water, all the gold would have been found in the bottom; here, on the contrary, it appears that they find gold, although in less quantity, also in the marly

mass, which leads us to believe that the gold and the stones were carried in a thick mass, in which they have not been able to be deposited at the bottom with facility. If to this is added that these auriferous earths extend up to the Cerro Nevados, it can be almost certain that its formation and translation is owing to inundations of thick mud, in accordance with the phenomenon of the glaciers. In respect to the land of recent alluvial, we can cite the land which is deposited at present on the shores of the river Huari-huari, or Inambri, from which is extracted every year a large quantity of gold.

Passing now to the eruptive rocks, we can say that in this region, comprising the object of our study, they are very rare. Between these rocks we ought to mention, in the first place, granite, the eruption of which is owing to the introduction of the slate of the numerous veins of auriferous quartz, although this rock has seldom issued from the surface. We can, however, cite an example of granite formation, near the Tambo of Huancarani, on the road from the town of Crucero to that of Phara.

Other eruptive rocks, sufficiently rare, in the province of Sandia, are the *porfidicas*, which Señor Raimondi has observed in one place, and this near the beautiful lake of Aricoma, on the road from Crucero to Phara, where these have been introduced between the layers of slates, so that we can see the *porfidos* alternating with the layers of the latter rock.

As regards the trachyte rock, although Señor Raimondi has not been able to discover the true place where its eruption has been made, a sure proof of its existence in the province of Sandia is a great deposit of conglomerate and trachyte matter, which commences near Accokunca, on the road from Crucero to Poto, and extends for over two leagues. This deposit at some points has been furrowed and cut by water, giving rise to isolated masses of the most capricious forms.

WORKING GOLD IN THE BEDS OF THE RIVERS.

Although many individuals extract gold from the rivers, washing the sand in troughs,—in the province of Sandia, however, they employ for this purpose a particular method,

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CAMANTI.

which is very ingenious. This method is employed in preference in the beds of the rivers Huari-huari, Pulipuli, Ccapacmayo, Pacchani, and in general on all the shoals which at times are covered with water in the rainy season when the rivers are increasing, and consists in forming on the beds of the rivers, when they are dry, a kind of paving which they designate in the country with the name of *Tocellas*. For this purpose they employ stones of medium size, that is, almost of the same dimensions as those they use to pave the streets, only they take care to select the flattest ones. These stones are placed in an inclined position, working so that one rests upon the other, in the same way of the current of the river. This disposition of the stones is indispensable, because if they place them in a contrary way they hardly obtain any gold. When the time of increase in the rivers has arrived, the water invades the beaches, flushes over this pavement, and carries with it the gold, which by its density falls in the interstices which the stones leave; whilst, if they collect the stones in a contrary way, the water charges with force in the cavities, and carries the nuggets of gold outside. The rainy season ended, the water of the river retires, and leaves a new dry bed; they then remove the pavement and wash the sand in troughs.

The Indians, who commonly devote themselves to this work, calculate beforehand, according to the extent of this pavement, how much gold they can probably collect, and it appears that in certain places they obtain a regular quantity of gold for each superficial square yard of paving. In the bed of the river Huari-huari, below the mouth of the river Challuma, they calculate the quantity of gold they can collect from these pavings at two drachms per square yard. This mode of collection of gold can be compared to a store in which they collect stones to gather gold.

GENERAL CONSIDERATIONS.

There is no doubt whatever that the earth which constitutes the provinces of Sandia and Carabaya is very rich in gold, and it is surprising that a region which in ages past has given such large quantities of the precious metal, is found to-day—with the exception of Poto—almost

abandoned. Some believe, perhaps, that the gold mines in the province of Sandia have been exhausted; this is a great error, since from whence comes the gold which is daily brought down by the rivers Huari-huari, Pulipuli, Ccapacmayo, Pacchani, &c.? It is clear that these rivers must derive their gold from the veins or from great deposits of auriferous soils; and if it is true that in the Quebradas of Challuma and Pucamayo they have only worked the deposits of auriferous earth which were found in sight, there still remain immense quantities to be worked. Thus, for example, in the old mining district of Aporoma there is yet work enough for very many years to come, and if that place is abandoned on account of the expenses required to procure the necessary water to wash the auriferous earth, this difficulty would disappear on the formation of a Company with capital, which would employ all the perfected methods which are used in the present day in works of this kind.

There has not yet been made any lengthened study of this region of Peru, and only the auriferous deposits have been worked which by pure casualty have been discovered. The veins are as yet almost virgin, and if some of them have a ley of gold—the working of which does not repay a private individual who conducts his operations on a small scale by the primitive quimbalete—it would bring greater advantages to a Company which refines in a single day a larger quantity of ore than a private individual could crush in many months in his mill. In order that the working of gold in the province of Sandia may be effected on a large scale, it is necessary, in the first place to make good roads to permit free transport by animals, and consequent introduction of requisite machinery, as well for washing the auriferous soils as for crushing the ores. Only a person who has personally visited the interior of the province of Sandia can form an exact idea of the roads which have to be traversed to go to the Quebradas of Challuma and Pucamayo, and many people on first seeing the broken state of the ground, and the thick vegetation of the Montaña, would believe the opening of a good road impossible. However, although the ground offers great difficulties at present, the making of roads is not impossible, since all

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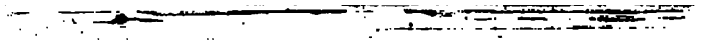


is reduced to the question of money. I do not doubt for a moment that with the opening of good roads, a lengthened study of the territory of the province of Sandia, and the employment of machinery, such as that which is in use at the present time in California, Australia, &c., that remote and rich region would afford remuneration for many generations, in as great quantities of gold as those which have made the name of Carabaya so celebrated.

REPORTS OF ENGLISH TRAVELLERS ON THE GOLD MINES OF PERU.

The intrepid explorer, Doctor Edwin Heath, reports to the Royal Geographical Society :—As would naturally be expected, the streams flowing from the auriferous Andes are full of gold. In the ravine of Tipuani (15° 31′ lat. and 68° 5′ long.) the blue clay slates associated with gold extend to the river Beni. The gold of Carabaya (lat. 14° long. 69°) has been famous for centuries, and in Marcapata is the golden hill of Camanti, about fifty miles from Cuzco. The golden hill of Camanti was first made known in 1788, and in this century Companies have been formed to work it. Next to Marcapata are the beautiful ravines of Carabaya, also famous for their gold washings, their coca estates, their coffee and fruits, as well as for their chinchona bark. But the products of the ravines and of the vast plains beyond are not confined to the precious metal. Gold is far from being the most valuable branch of their varied sources of wealth. This is the region of the chinchona bark, the richest in quinine, of the finest coffee and cocoa in the world, of many kinds of rare and beautiful cabinet woods, and of inexhaustable supplies of india-rubber.

Mr. Minchin, in a report to the above-mentioned Society, says :—In the rivers of Tipuani, Challuma, Cajones, on the Andes of Peru and Bolivia, and others which descend from the high Cordilleras, very rich deposits of gold exist, which, in spite of the rugged nature of the country and the impossibility hitherto of obtaining adequate machinery, have at all times yielded largely. The gold in this case is found collected in the "bed rock" usually met with a few yards below the river bed, and is also disseminated through strata in the adjoining mountains.

Gold deposits also exist at San Simon on the Itenez, in the hilly district of San Javari, on the right bank of the river San Miguel (lat. 13° and long. 70°), where mines are at present worked in a primitive state.

PRECIOUS STONES.

There are Jews at Santarem who go up the Tapagos river and bring down gold-dust and diamonds; the latter afford a great profit, and are chiefly found on the Sierra, which lies between the sources of the Tapagos and the Paraguay rivers, on the borders of Bolivia.

There is every reason to believe that diamonds will also be found at the sources of the Peruvian rivers which descend from the eastern slope of the Andes, so soon as those regions are explored.

The ancient Spanish writers make frequent mention of emeralds and precious stones, in the works of art made by the Incas. "The figure of the sun (at Cuzco) was engraved on a massive plate of gold of enormous dimensions, thickly powdered with emeralds and precious stones." —"Cieza de Leon Cronica," cap. xliv., xcii. "Sarmiento Relacion MS.," cap. xviv. "There were (at Cuzco) a large quantity of vessels of gold and of silver, and emeralds, vases, pots, and all sorts of small vases, all of fine gold."— "Sarmiento Relacion MS.," cap. xxiv. "Emeralds they obtained in considerable quantity from the barren district of Atacama. They had turquoises also." — Garcilasso, "Com. Real," Part I, lib. viii., cap xxiii. "The clothes of the Inca nobles were made of vicuña wool, some embroidered with silver and gold, others with emeralds and precious stones."—"Cieza de Leon Cronica," cap. cxiv.

THE MINING LAWS OF PERU.

The mining laws of Peru were reformed by a new law passed by Congress, January 12, 1877, which reformed the old laws very considerably, establishing a new basis for mining property, and introducing other important reforms for the protection of this industry. The mining laws of

various nations were studied, and the new laws were, in part, based upon the law at present in force in Spain. The new laws are thus laid down :—

Art. 1.—Creates a tax of 15 soles (60s.), paid half-yearly, for the possession of each holding of mines.

Art. 2.—This tax extends to coal and petroleum.

Art. 3.—Declares this contribution not to exempt mines, although they may be surface mines or other works which, according to the law, may be permitted.

Art. 4.—Declares that the tax has to be paid to the officer indicated by the Government, that is, the Treasury.

Art. 5.—Prescribes that the punctual and continual payment of the tax is essentially requisite for the possession and legal proprietorship of the mine, if worked or not. He who ceases to pay it half-yearly loses indefeasibly his right.

Art. 6.—The possession of a mine is rendered void if it happens that it is lost through its owner having failed to pay the tax.

Art. 7.—The Judge will not furnish recourse to opposition to the petition for a mine, if that recourse is not accompanied with proof of the opposer having paid the tax in the last six months.

Art. 8.—All right of property is indivisible for the payment of the contribution.

Art. 9.—Enacts that each one of those who litigate for a mine must pay the tax integrally, and that he who does not pay it punctually loses his right.

Art. 10.—The payment of the tax is to commence, as in effect it did commence, from the 1st of June, 1877, to be confirmed in future in the two latter months of each half-year, without adjournment being allowed.

Art. 11.— Disposes that the funds proceeding from the tax be applied,—1st, to the special School of Mines; 2ndly, to the support of a special body of mining engineers, who may lend their services at the deposits; and, 3rdly, to the general encouragement of mining.

Art. 12.—Prescribes the proceedings that owners of mines have to observe to register their titles, from the date of the commencement of the law.

Art. 13.—The territorial deputations will keep a register of mines, in which an account is kept of the titles they issue.

Art. 14.—The copies of the titles issued by the delegates will be remitted officially immediately to the Direction of the Administration of the Ministry of Finance, which is the central office, to take integral account in another register. The copies are archived, and a receipt given to the interested party.

Art. 15.—The Direction will form a padron-general or Register, divided into mineral districts, in which will be inscribed,—1st, the name and kind of the mine; 2nd, the name of the proprietor; 3rd, the number of holdings of each; and 4th, the contribution which he has to pay.

Art. 16.—This padron is published in Lima in the months of March and September of each year, and in April and October there are remitted officially to the prefects, sub-prefects, and territorial dignitaries, the necessary copies of the part which corresponds to his territory for its publication in the Departments. The padrons are renewed in this way every six months.

Art. 17.—In the half-yearly padrons the mines whose owners may have paid the tax in the last half-year, are only recorded according to the report of the receiving office of the claims newly adjudicated.

Art. 18.—The receiving offices will remit to the Direction in February and August of each year a report or account of the properties which may have paid the tax in the previous half-year.

Art. 19.—Those who may not have paid in the previous half-year lose their property absolutely, which may be applied for by others, without the last possessor being able to oppose.

Art. 20.—The judges of the first court exercise in their own provinces,—if there be no territorial deputies,—the administrative and judicial functions of these provinces;

Art. 21.—In which case none of those functionaries can exact for the duties they perform beyond the place of their residence more than 10 soles for all expenses in the first league of distance, and 2 soles for each extra league, it being understood for one single league the going and return. The clerks will receive the half of this sum, and experts what they stipulate with the interested party.

Art. 22.—Though strangers can acquire and work mines in all the territory of the Republic, enjoying all the rights and remaining subject to all the obligations of the natives respecting the property and workings of the mines, they cannot exercise judicial functions in the government of the mines.

Art. 23.—Building-stones, sands, chalks, clays, slates, and similar materials, belong to the proprietor of the land, and their working is not subject to the mining laws. In the lands of that State or of the municipalities their use is common to all, excepting the contracts made for the latter with any particular.

Art. 24.—The engineers appointed to the mineral districts are obliged to dictate a practical course of subterranean works, and the building up of the mines; to make master miners act according to the direction of the School of Mines.

Art. 25.—This law does not include saltpetre mines.

Arts. 26 and 27 enact that a law be dictated, and the resolutions necessary for the carrying out of this law (as in effect has been afterwards done), be drawn up, and the laws which are contrary to it cancelled.

II.—COAL AND PETROLEUM MINES.

With respect to these mines a special law was dictated on the 17th of April, 1873, which is still in force. Its principal dispositions are reduced to this:—The acquisition of holdings is free and gratuitous for natives and foreigners in the lands of the State; it is likewise the same in the communal lands, but by paying to the municipality the rates for the superficial land occupied; it is equally so in the case of private lands, by paying to the owner for the superficial land and the damages. The extent of the holdings in this class of mines is from 40,000 square mètres upwards, and should not be less in width than 40 lineal mètres. Companies legally organised can be possessors up to five holdings, and even ten if they were the discoverers. The holdings which, after one year's possession, are not found in active and regular work, are liable to be dispossessed, and cannot be possessed again by the same persons. In other respects these mines follow the ordinary regimen.

In all classes of mines a person or Company can possess whatever number of holdings he may please, by private title of purchase, gift, or inheritance, beyond those which they are entitled to hold according to the laws.

III.—MINERAL SUBSTANCES SUBJECT TO MINING LAWS.

Respecting the laws which have been set forth in the preceding pages, it is intended that the working of all kinds of mineral substances be subjected to the mining laws, with exception of lime, clay, colouring earths, marble, and all those used for building purposes.

Art. 22, tit. 6, of the Decrees gives a very clear explanation upon this point, and lays down that one can discover, register, and petition before the Deputies, not only for lands producing metals, but likewise for those containing precious stones, half metals or metaloids, gemma salt, fossils of all sorts, and even bitumen and asphaltic rocks. There are, however, various distinctions to be made.

IV.—QUICKSILVER, SALTPETRE, NITRATE OF SODA, BORAX, SALT, AND PEAT AS REGARDS THEIR CONNEXION WITH THE LAW.

Quicksilver, which was reserved by the Spanish Government when they published the Laws of 1811, is now free to be worked for trading purposes, and it is now on the same footing as the other minerals as to the mode of possessing them.

Saltpetre (nitrate of soda) and Borax (borato de cal), are monopolised and declared fiscal property. All discovery, then, which may be made of these substances, should be announced to the Government. Formerly the possession of holdings of nitrate of soda and borax was made before the Mining Deputies; but the abuse and concealment which was made of all the nitrate of soda lands by covetous and untrustworthy speculators, by favour and condescension of the functionaries, brought about the Government prohibition to concede new holdings, even before having decreed the monopoly.

Touching Guano, which, although a fossil substance, is not mineral, it is not, nor has it ever been, subject to the mining laws. It is subject, like nitrate of soda, to

the monopoly of the Government, and it is the practice to concede to the discoverer of new deposits a premium more or less considerable, according to the importance of the discovery.

Salt was formerly reserved by the Spanish Government. Although by Art. 15, tit 13 of the Decrees it is declared that salts of all kinds can be discovered and claimed by any person, it provides likewise that this should be brought to the knowledge of the Government to determine as to the working, refining, distribution, and price of the salt, in order not to prejudice the revenue. The country being emancipated in 1821, there was promulgated two years afterwards the first political constitution of Peru, in which all prohibitions were abolished. Notwithstanding what has been laid down by the Decrees respecting the possession of salt mines, and that there are examples of petitions being lately made of this class of holdings before the Deputies, at the present time the salt mines are subject only to the municipal regulations, the corporations of which permit the free traffic in them through their respective territories, collecting only a small duty for each arroba or stone of salt extracted, with the object of being able to maintain the deposits in a good state, order, and preservation. Notwithstanding, there are some salt mines in private lands, whose owners work them without either the Ayantamientos, or any person whatever, throwing the least obstacle in their way ; which proves that, in spite of what is laid down in the Mining Decrees, the general opinion of the country is that the salt mines are the property of the owner of the soil. There are persons who think that salt ought to be reserved by the Government, as is the case in some European states, as that no one better than it has the means of preserving the good condition of the salt mines, and of working them and distributing the article according to the demands of the towns. We do not participate in this view of the case, and we have faith in the principle of absolute liberty to legitimate industries; because only in the seat of liberty, flourish work and industry, and whatever restriction is placed upon the working of them, beyond the exigencies of morality and public health, only serves to drive them off from the road of prosperity.

As regards Peat, a half fossil and half vegetable fuel, there has been nothing prescribed by the law in a definite way. The Mining Decrees can classify it amongst the bituminous substances mentioned in Art. 22, tit. 6, as science classifies the peat amongst the mineral fuels; but on no occasion have persons taken possession of deposits of peat in conformity with the mining laws; and their ownership has, by custom in Peru, been held by the owner of the land. In the interior, that is, in the regions of the Andes, it is almost the only fuel which exists, of which certainly no one would pretend to deprive the proprietors. And, moreover, the species of peat which we possess (*champa*), not being a product of the subsoil but of the surface, which commonly serves for the sustentation of the flocks in certain seasons, ought to be always considered as part of the property of the soil.

V.—THE TAX OF FIFTEEN SOLES, AND ART. V. OF THE REFORM LAWS.

As regards the tax of fifteen soles, it has been calculated in the just proportion suitable to the exigencies of the country, so that it may not be very irksome for the miner, who works his holdings with more or less profit, nor remain to be a heavy charge for him who does not work his mines, but contents himself with the vain title of holder, withdrawing himself to the active work of other industries.

The part in the law of reform which alarmed the miners of the country most was Art. 5, by which it is permitted to keep the ownership of a mine, *although it be not worked*, so long as the half-yearly tax is paid. They said that this was to annul those mines, since it kept them from being worked, and making any production. The force of this argument was, without doubt, more apparent than real; because in a country like Peru, where there is a scarcity of industries and labourers, where the mines are counted by thousands and miners by tens, it is rare that a mine not worked by its owner may have sufficient importance, that others may have the desire to undertake the working of it. In all cases those examples are exceptional, and by them ought not to be judged the established principle of keeping

the possession of a mine, *although it be not worked*, so long as the owner pays his contribution. If the opposite system were adopted, besides that the measure would be ineffectual in the sense of increasing the production, there would likewise be lost the fund which the tax now produces, which is so useful to the general interests of the mining industry by the seasonable application which law gives it. It is not difficult to agree upon the working of a mine with the owner, which is a mine not worked, since the desire to derive some profit from it will make him accept equitable conditions, if he has confidence in the carrying out of the new undertaking.

Our opinion would be different if it treated of a populated industrious country, and one less abundant in mines than Peru, since in the former case all would be worked, as with abundant capital, the power of working, and other elements, nothing would be wasted. It would be prejudicial to keep the proprietorship of the mines in inactive hands by the petty interest of a contribution. This situation is not yet ours; if it will fortunately come later on, then there will be a suitable innovation made.

THE ADVANTAGES WHICH THE MINING LAW OFFERS.

From the examination of our mining laws, there result the following facts :—

1. That the working and possession of mines in Peru is entirely free for natives and foreigners, without other obligation than the tax of fifteen soles half-yearly paid for each holding.

2. That the punctual payment of this contribution, being once made, and registration of the title or adjudication having been effected, secures the mining property from all usurpation, and even from all contentious litigation; since against the certificate of payment nothing can be objected, neither has the judge even power to admit an objection.

3. That the administration of justice in mining matters is summary, and founded on good faith, to suit the requirements of commerce.

4. That the administrative faculties imposed upon the territorial Deputies, amply provide for the good govern-

ment of the works and the preservation of order in the deposits.

5. That the country is solidly established in mining instruction by means of the special School of Civil Construction and of Mines, which is the best institute of its kind in South America; that the legal proceeding to examine and possess mines is exceedingly simple, and of little cost, since the law has fixed even the price which has to be paid for the journey of the functionaries who are engaged in these duties.

PROCEDURE FOR THE OBTAINING OF TITLES.

Supposing that a foreigner resident in Peru wishes to acquire and work mines, the first thing he has to do is to inform himself of the situation of the principal mining centres, of the quality of the mines, and conditions more or less favourable of the place. This point decided, and the mineral selected in which he wishes to undertake his workings, he should examine in the official newspaper for the last padron published, in order to satisfy himself which are the mines in that place which have ownership. Established there, and knowing already the properties which are legally owned, it is easy to examine those that are free, and possess that which suits him best, by means of an application in the form we have detailed in explaining the laws. The Judge, or the Deputy in the absence of the former, delivers his order for possession, ordering the same to be published; a pit may be opened or a working may be washed, according as it is a new or an already worked mine, and the hills are cited, if there are any. The pit opened or the works prepared, within ninety days in the first case and sixty in the second, the Deputy proceeds with the interested party, the clerk, and engineer or expert, to the site of the mine, recognises it, measures the property, gives possession, and fixes the stakes or boundaries. These steps being taken and registered in the proper book by the clerk, who makes an extracted copy of the principal parts at the expense of the interested party, the Deputy remits it by post to the Direction of the Administration for official registration, and to inscribe it in the padron of mines. The original title remains in the possession

of the owner for his security; should it be lost, or he does not wish to take out a new copy at the Deputy's office or at the Direction, it is sufficient, with the padron published twice yearly, for the security of his property.

RESPECTING MINING LEGISLATION.

By SEÑOR HABICH, *Director of the School of Mines.*

Mining property in Peru consists in the concessions that are made in superficial unities called *Pertenencias.* A mining pertenencia (claim), in conformity with the Mining Decrees, is a superficial piece of land of 20 to 40,000 square yards, or 13,975 m., according to the inclination of the vein. The pertenencia of coal, in conformity with the Law of 28th April, 1873, has 42,000 m. The old pertenencias, like a part of the Cerro de Pasco, previous to the year 1785, measured only 1,800 square yards, or 1,258 m. The pertenencias in the gold deposits,—*placeres rebosaderos*, or natural washing-beds,—have no fixed dimensions; the State assigns them according to acknowledged conveniences.

SECURITY ENJOYED BY FOREIGNERS ENGAGED IN MINING IN PERU.

From the Report on Mines by DR. R. M. LA FUENTI, 1883.

The insecurity and want of guarantees to foreigners in Peru, and, in general, in the South American Republics, which are so much affected by political controversies, have been spoken of with much exaggeration. This opinion, although accepted blindly in Europe by persons who do not take the trouble to inquire into the real facts, is unfounded almost in its totality. On the contrary, if any persons in Peru hold guarantees and full liberty for working, they are foreigners, and if there has been by chance any instance of offences committed against them, they have been very rare indeed, and have been effectually repressed by the authorities.

The character of the inhabitants of this country is benign and tolerant, and we are not aware of late years of any attempt being committed against the persons or interests

of foreigners, who have taken no direct or active intervention in political questions, and even if such has been the case, they have been treated with remarkable consideration and kindness. We are persuaded that there will not be found a single person who can reasonably say that his interests have been usurped, that any extraordinary contribution has been exacted of him, or that he has been directly injured in his establishment or dwelling. During vehement political commotions, all possible guarantees and protection have been extended to foreigners, whom the people have never ceased to respect and treat with regard. There is, then, not the slightest motive for fear on the part of strangers who may wish to establish themselves in our mining districts; they may be perfectly certain that they will there hold, in their persons and interests, as much security as in any other civilised country. Their own interests ought to prompt them to come, because they will find on all sides abundant mines of precious metals; and if the country is wanting in general in good roads and other necessary elements, these can be made without great difficulty up to the point of contact with the various railways, of which some are now working, and others in the course of completion.

GENERAL REGISTER OF MINES (PADRON DE MINAS) FOR THE SECOND HALF-YEAR OF THE YEAR 1886.

TUMBES.

Mine.	Proprietor.	Number of holdings.
Petroleum	Faustino G. Piaggio	20
	AMOTAPE.	
Petroleum	Juan B. Mulloy y Juan B. Thorndicke ..	9
	PIURA.	
Sulphur	J. M. Noriega y Gavino Menchaca & others.....	12
	TRUJILLO.	
Gold and Silver...	Handforth Hope Jones	8
,, ,,	Baltazar Remoliff y C^{a}	7
	HUAMACHUCO.	
Silver	Santiago Calderon	1
,, ...	Luis G. Albrech	9
,, ...	Miguel Porturas	1
,, ...	Nicolás Rebaza	2
Coal.....	Luis G. Albrech	1
	SALPO.	
Coal.....	Pedro T. Larrañaga	1
Silver	Manuel M. Quevedo	1
,, ...	Vicente Gonzalez Pinillos	10
,, ...	T. Fernandez Castro	3
,, ...	Adeodato Salas	4
,, ...	Martin Hermanos	7
,, ...	Ricardo Martin Hermanos.....	1
Silver and lead ...	Juan Mason	1
Gold and silver ...	Adeodato Salas	2
	CAJABAMBA.	
Silver	Santiago Martin	1
,, ...	José Santiago, Ricardo, Alberto, Elias y Elias y Eliseo Martin	2
,, ...	Manuel José, Juan José y Felipe Velesmoro	9

HUALGAYOC.

Mine.	Proprietor.	Number of holdings.
Silver	M. I. Prado y José A. Goyburu	4
,, ...	Jesús Carrera y Sra. Odiaga	2
,, ...	Lucas Ortiz y F. Carrillo	2
,, ...	Joaquin Bernal.....	1
,, ...	Herrera y José C. Miranda	4
,, ...	María Arana.....	3
,, ...	José Mercedes Farje y C^{a}	1
,, ...	José C. Apesteguia	1
,, ...	Francisco Santolaya.....	1
,, ...	Joaquin Bernal.....	2
,, ...	Frac. Santolaya y M. Imaña	1
,, ...	Miguel Imaña	3
,, ...	Baldomero Herrera	1
,, ...	Gregorio Gonzalez C^{a}.....	1
,, ...	Eloy Santolaya	5
,, ...	Diego Chico.....	1
,, ...	Francisco y Eloy Santolaya	3
,, ...	Inocencio Lavalle y Eloy Santolaya.....	3
,, ...	M. Muñoz, sobrinos y E. Santolaya	1
,, ...	Luis García y Stgo. Odiaga	2
,, ...	Herminia S. de Imaña	1
,, ...	Cárlos Van Isschott.....	1
,, ...	José María Gallardo y S. M. Omontes...	1
,, ...	José M. Farje y Félix J. Omontes	1
,, ...	José M. Farje	1
,, ...	Miguel Imaña y E. Sanchez	1
,, ...	Mateo Gallardo y C. Prado	1
,, ...	Executors of de Bernal y J. M. Herrera	3
,, ...	J. M. Herrera, hermanos y Exequiel Ibañez	1
,, ...	Oswaldo Gálvez	1
,, ...	Agustin Iturbe.....	1
,, ...	José del C. Omontes y M. Portal & others	1
,, ...	Tomás Quevedo	1
,, ...	Luis García y Eusebio Ascurra	1
Copper	José Lucas Ortiz	1
Copper and lead	J. M. Farje & others	1
,, ,, ...	Inocencio Lavalle.....	1
,, ,, ...	José Iné Aristi, E. Santolaya y Diego Chico.....	1
,, ,, ...	José Quiroz	1
,, ,, ...	J. Quiroz, Juan Lopez y R. Hoyos	1
,, ,, ...	Eliseo Muñoz	1

HUALGAYOC—*continued.*

Mine.	Proprietor.	Number of holdings.
Silver and lead ...	Elizeo Muñoz	1
Copper and lead...	Juan C. Muñoz y Cª	1
Lead and silver ...	,, ,, ...	3
Silver and copper	,, ,, ...	3
Copper	,, ,, ...	1
Coal.....	Juan C. Muñoz, N. Tello, J. Varela.....	2
,, ...	Cristóbal Thill y Cª.....	2
Gold and silver ...	C. Tillit y Van Isschott	1

CONTUMAZÁ.

Silver	Miguel de La Puente.....	1

HUARI.

Silver	Juan F. Remy y Cª.....	1
,, ...	Dionisio Vizcarra.....	2
,, ...	Bar y A. Schreiber.....	2
,, ...	E. R. Gonzalez, F. R. y Escalante	1
,, ...	Ciro S. Hudson y Paulino del Rio	2
,, ...	Ciro S. Hudson	1
,, ...	Vicente Lezameta	
	Miguel Michelerio, Francisco Andavaca,	2
,, ...	Santiago Chena y S. Grasano	3
,, ...	J. M. Loli.....	4
,, ...	Rafael Solis	1
,, ...	M. Robles Arnao y J. de Mata Ames ...	1
,, ...	José V. Egusquiza y M. N. Jimeno	1
,, ...	Vicente Lezameta	3
,, ...	Ciro S. Hudson y Lizardo del Rio	2
,, ...	Juan C. Eyzaguirre.....	3
,, ...	José Escalante & others	1
,, ...	L. Ames & others	2
,, ...	Hamson Hermanos y Cª	2
,, ...	R. Mazzina y P. Cafferata	2
,, ...	Caffereta, Canepa y La-Torre	1
,, ...	Caffera y Masini	2
,, ...	Lutgardo La Puente & others.....	2
,, ...	José Lagunas & others	3
Coal.....	Socd. Sokoloski y Thierry	2
,, ...	R. Mazzina y P. Cafferata	1
Not stated	Nicanor Ariza y C. Cáceres	1
,, ...	Compañía Minera de Quito	4
,, ...	Agustin Villon y Cª.....	1

PALLASCA.

Mine.	Proprietor.	Number of holdings.
Silver	Juam S. Bartolomé Therry	2
,,	Clemente Claude y Cª	1
,,	Oscar Heren	1
,,	Compañía S. Juan Limitada	9
,,	J. S. B. Terry y A. Basallo	2
,,	Victor Rosazza	2
,,	Arturo Wertheman	1
Coal	Compañia S. Juan Limitada	2
Gold	Toribio Alvarez	1
Gold washing	,, ,,	1

POMABAMBA.

Silver	Genónimo Cisneros	1
,,	José Estrada y Cª	2

CAJATAMBO.

Silver	José D. Bahamonde y Ca	1
,,	Pedro Prario	2
,,	Julio Cámara	1
,,	Andrés A. Alvarez	4
,,	José del C. Reyes	10
,,	José D. Bahamonde	1
,,	Manuel T. Gonzalez	2
,,	M. T. Gonzalez, S. P. Dunstan y T. F. Reyes	1
,,	Manuel Ipince	2
,,	Felix Octavio Cámara	1
,,	Simon P. Dunstan y Cª	3
,,	A. Osterloch y A. Schultz	8
,,	Felipe B. Mayta é hijos	2
,,	Cárlos A. Haag	2
,,	Mariano Lizarribar, Cárlos Mognaochi, Luis y P. Peraldo	6
,,	Guillermo Renwinck	1
,,	Isidro Espejo y M. Sosa y Arévalo	1
,,	Isidro Espejo	1
,,	Manuel I. Romero	3
,,	Manuel y Emilio Ghidoli	3
,,	Dámaso Fuentes Rivera	3
Coal	Pedro Prario	1

CAJAMARCA.

Mine.	Proprietor.	Number of holdings.
Silver	Alberto Martini	5
,,	Socd. Minera de Chilete	20
,,	Mercedes Bardales	1
,,	J. Mariano Cacho	1
,,	Francisco M. Santolaya	1
,,	Ulises Batistini	1
Coal	Rafael Villanueva	1
,,	Manuel Romero	1
Silver and lead	Soed. Minera de Chilete	8
Silver and copper	Carolina V. de Puga	3
Gold	Manuel Valero de Lopez	1

HUAYLAS.

Silver	J. M. Torrance, for the Compañía Patara	17
,,	Julian Durán de la Torre	1
,,	Dionisio Huici	2
,,	Benjamin Olivera	4
,,	José Chanca	1
,,	Juan M. Figueroa y Cándido Vilas	2
,,	Ricardo Rey y Basadre	6
,,	M. Guerrero, D. Pardo & others	1
,,	Plácido L. Angeles y HH	1
,,	Vicente Zzeza y P. Renaud	1
,,	Pablo Valle Leon	1
,,	Empr. Minera de Uchcu	6
,,	J. y B. Velez y Escudero	2
,,	Brayson y Hermanos	2
,,	Francisco Andabaka	2
,,	Federico Alegre	1
,,	José Laguna	4
,,	Antonio Lucar	1
,,	Francisco de Usua	1
,,	Juan B. y Roberto Brayson	14
,,	Santiago Bernardini y C^{a}	2
,,	Juan M. Figueroa	5
,,	José Lagunas	6
,,	Eduardo Chueca	2
,,	Conrado Bassalik y Manuel Torres	1
,,	Enrique Mendez & others	1
,,	María Jesus Durán	2
,,	Enrique Philipp	1
,,	Juan H. Torrance	1
,,	Manuel J. Beteta	1

HUAYLAS—*continued.*

Mine.	Proprietor.	Number of holdings.
Silver	Mariano M. Villafranca	2
,,	Bartolomé Visbal	1
,,	Enrique Almandas y socios	1
,,	Cárlos Piérola	1
,,	José R. Terry	1
,,	José A. Lopez y José A. Romero	1
,,	Javier Ramirez é hijos, Buenaventura y Lesco Ramirez	1
,,	Eduardo y Ricardo Mendez	1
,,	Carmelo Botello Mendoza & others	1
,,	Eduardo Chueca	1
,,	José Laguna y C^{a}	1
,,	Mariano Minaya y Villafranca	1
,,	Juan B. Robles	1
,,	Pedro Laguna	1
,,	Simon A. Montañez	1
Coal	Juan M. Figueroa	1
,,	Pablo Valle y Leon	1
,,	M. M. Villafranca y E. F. Sanchez	1
,,	Julian Durán la Torre	1
,,	Benjamin Olivera	4
,,	Gerónimo Cisneros	1
,,	Juan B. y Roberto Brayson	1
Silver and lead	Conrado Bassalik y Manuel Torres	1
,, ,,	Cárlos Piérola y Florentino Mendoza	1
,, ,,	Luis Smith, for the Compañía Mineral de Uchcu	1
,, ,,	Adolfo Arámbulo y Juan P. Castillo	1
,, ,,	José E. Hidalgo, S. Giraldo y P. Cochachin	1
Copper	Cárlos A. Chueca	1
Coal	J. M. Torrance, for the Compañia Patara	1
Silver and Sulphur	José Rossasa	1
	HUAYLLURA.	
Gold	Aurelio García y García	6
	PALMADERAS.	
Gold	Aurelio García y García	5
	ORCOPAMPA.	
Silver	Oscar Heren	9

RECUAY.

Mine.	Proprietor.	Number of holdings.
Silver	Wainwright, executors of	2
,,	Custodio Bohorques	1
,,	Antenor Pozo	2
,,	Cáceres Hermanos	1
,,	Manuel y Vicente Cáceres y A. Clark	2
,,	Juana Lugo de Icaza	1
,,	José Laguna	1
,,	Juan M. Remy y Cª	1
,,	Socd. Sokoloski y Thierry	31
,,	Juan M. Loli, A. A. Antunez, J. M. Morales, H. Gomez, y A. Larrañaga.	1
,,	Oscar Peterson	2
,,	M. Alzamora, A. Icaza, Manuel S. Morales y Juan Loli	2
,,	Bartolomé y Lorenzo Torres	4
,,	Cayetano Diaz	1
,,	Luis Smith y Pedro C. Infante	1
,,	José Patrocinio y M. E. Sanchez	1
,,	Sokoloski y Thierry	4
,,	Manuel J. Morales y socios	5
,,	José Laguna, C. Figueroa y M. S. Alegre	2
,,	José Laguna y Manuel Lazarte	1
,,	Empresa Minera de Uchcu	2
,,	Manuel Palma	1
Silver and copper.	Juan M. Remy y Cª	1
,, ,,	Socd. Sokoloski y Thierry	2
Coal	Sokoloski y Thierry y D. Cáceres	1
,,	Aloys Schreiber y Cayetano Diaz	1
,,	Eugenio y E. Tarazona	1
,,	Pedro G. Mejia	1
,,	Miguel Ibeta, executors of	2
,,	Pedro Cafferata	1

ACARI.

Copper	J. L. Tondicke y Vicuña	54

HUANCAVELICA.

Silver	Cárlos M. Pflucker y HH.	29
,,	Juan Iramátegui	3
,,	Manuel Picasso y HH	3
,,	Martin Fitz, Mauri y Angeles Lenci	4

HUALLANCA.

Mine.	Proprietor.	Number of holdings.
Silver	José Y. Durán	5
,,	J. I. Durán y Elisa Theobal de Durán...	1
,,	,, y Pedro Pazos	1
,,	María Bustamante	2
,,	Andrea Huaynate	1
,,	José Ignacio Durán é hijos	1
,,	Elisa Theobal de Durán	3
,,	José Bermudez	1
,,	Pedro Rubin	1
,,	Gregorio A. Durán	3
,,	José Piqué Torres & others	2

CERRO DE PASCO.

Silver	José Gregorio Trelles	1
,,	Juan Languasco	3
,,	Juan Patricio	1
,,	Pio Canta & others	3
,,	Juan Palacios	2
,,	Pedro Pablo Santa Maria	5
,,	Manuel Clote y J. R. Azcárate	4
,,	Hijos del Coronel Juan J. Salcedo	4
,,	Benito Antonio Ijurra	6
,,	Manuel Mier y Terán	1
,,	José Malpartida	16
,,	M. A. de La Torre	2
,,	Bruno F. Morales	1
,,	María Moreno	1
,,	Benito Ijurra	1
,,	Manuel Loayza y J. M. Maurtua	1
,,	C. Izola, M. Dumacith y D. Mazzini	1
,,	Lagravere é hijos y María Moreno	1
,,	Gregorio A. Durán	2
,,	José Aveleyra	4
,,	Eduardo O. de Villate & others	1
,,	Templeman Bergman y C^{a}	3
,,	José Gallo	1
,,	Compañía La Esperanza	1
,,	M. Loayza, J. Canessa y P. Venegas	1
,,	Manuel Loayza y M. Lavado	2
,,	Leandro del Campo	2
,,	Manuel Ex-Hélmes	1
,,	Andrès Lodoverasa	1

CERRO DE PASCO—*continued.*

Mine.	Proprietor.	Number of holdings.
Silver	Toribio A. Vial y J. M. Maurtua	1
,,	Presentacion Benavides	1
,,	Juan Costa	2
,,	M. de la Sierra y Andrea Cabidia	1
,,	E. O. de Villate, executors of	11
,,	Pedro Narvaez	1
,,	Lagravere é hijos	32
,,	Eulalia Santivañez	1
,,	Juan de Ugarte	2
,,	Melchora Vaquero	1
,,	Francisco Sagastabeytia	1
,,	Francisco Sagastabeytia, E. Gomez Hurtado y M. S. Jurado	5
,,	Agustin Tello	9
,,	Guillermo Cheneman y R. Adams	2
,,	C. Minaya, A. Languasco y A. Maghella	4
,,	Julian Minaya	1
,,	Manuel Chavez	19
,,	José M. Escurra y Erasmo Fernandini	3
,,	José M. Maurtua	1
,,	Jorge E. Steel	11
,,	Juan A. Gordillo	1
,,	Severino Lobaton y C^{a}	3
,,	Ignacio Alvarez	1
,,	Pedro Rossi	1
,,	Juan Mayta	1
,,	Juan Esparza	1
,,	Josefa Navarro	6
,,	Ignacio Rey por la casa Steel	5
,,	Jorge E. Steel por M. Gutierrez	4
,,	Rosa Mercedes Amalia y F. Riglos	6
,,	Herederos de José Aveleyra	5
,,	Manuel Dámaso Tello	1
,,	Juan Languasco y C^{a}	4
,,	Escolástica Falcon	3
,,	Ditto (in ligitation with D. L. Contreras)	2
,,	Apolinario Franco	5
,,	Eduvijes Campo Redondo de Matute	7
,,	Manuel I. de La-Torre	10
,,	Antonio Cárdenas	1
,,	Carmen Cárdenas de Máurtua	1
,,	Pedro Caballero y Valbertini y C^{a}	1
,,	Isabel Alvarado	1
,,	Cirilo Bazo	1

CERRO DE PASCO—*continued.*

Mine.	Proprietor.	Number of holdings.
Silver	Mercedes Bony	5
,,	Ditto (in litigation with Buenaventura del Castillo)	5
,,	Ditto (in litigation with la Sociedad Colquijirca)	1
,,	Genara Maghella	19
,,	Juan Esparza	1
,,	José María Maurtua	2
,,	Federico Verástegui	1
,,	F. Herrera y M. Tapia	5
,,	Felix y R. Otero	5
,,	Manuel Sanchez Cossio	2
,,	Pio Canta	4
,,	Juan é Isidro Rodriguez y J. Barrera	4
,,	Manuel Loayza	1
,,	Tiburcio Matos	1
,,	Justo R. Ascárate y C^{a}	1
,,	Casimiro Noria	2
,,	Pascual Ortiz	3
,,	María Moreno V. de Puch (in litigation with Dr. D. M. Maiz)	8
	MINAS DE PLATA PROVISIONALES.	
Silver	P. Steel	2
,,	G. Negrete, por M. Guzman	1
,,	Ceverino Lovaton	1
,,	J. Duran	1
,,	Ramador y J. H. Rivas	1
,,	Bernardo Efio	1
,,	Andrés Trujillo	2
,,	J. J. Valdivieso	2
,,	Justo R. Ascarate	1
,,	Manuel Moreno y Mais	12
,,	Pedro Narvaez	1
,,	Manuel Pardo	1
,,	L. C. Contreras J. Teresa de Faño	2
,,	D. A. Gordillo	2
,,	Cárlos Minaya	3
,,	Benito A. Ijurra	4
,,	Manuel S. de La-Torre	1
,,	Andrés Trujillo, L. A. Flores y C. Merino	1
,,	Andrés Pajares	1
,,	Manuel A. de La-Torre	3
,,	A. H. de Ortiz y M. Nano	2
,,	Luis Márques	3

CERRO DE PASCO—*continued.*

Mine.	Proprietor.	Number of holdings.
Silver	Juan é Isidro Rodriguez	1
,,	Juan Languasco	1
,,	J. R. Azcárate y J. M. Escurra	4
,,	Sociedad Internacional	10
,,	Casimiro Noria	1
,,	Francisco Martinenchi	1
,,	Sociedad Colquijirca	8
,,	A. Gonzalez	1
,,	C. Minaya	1
,,	Pedro Narvaez y Benito A. Ijurra	1
,,	Erasmo Forzano	1
,,	Victoriano Rivera	1
,,	Jesús Gutierrez	1
,,	Manuel N. Valdizan	1
,,	Gallo por	1
,,	Wenceslao Jimeno	1
,,	Leon Becerra	1
,,	Clodomiro Cárdenas	1
,,	Manuel Mier y Teran	1
,,	Juan Rodriguez	1
,,	Agusto Lequerica	1
,,	Asuncion H. de Ortiz y Manuela Nano	1
Coal	P. Roman y L. de La Puente	2
,,	José Rufino Cárdenas	2
,,	Casimiro Minaya	1
,,	Jaime Garreta y Toribio Diaz	2
,,	Compañia La Esperanza	4
,,	Claudio Gutierriez	3
,,	Guillermo Myers	3
,,	Felipa Tello de Sanchez	1
,,	J. y Purificacion Sanchez & others	3
,,	Juan A. Gordillo	5
,,	Toribia Diaz	1
,,	Ricardo Myers	1
,,	Federico Verástegui	1
,,	Manuel Benavides y María Lugo	3
,,	Manuel Benavides	1
,,	J. Steel y C^{a} provl	1
,,	Sociedad Internacional provl.	3
,,	Ignacio Alama provl.	2
Not stated	Carolina Pellegrin y F. Alania	1
,,	Vicente Cabiedes	1
,,	Manuel Arrieta	1
Silver and lead	Clodomiro Cárdenas y Manuel D. Ortiz	2

YAULI.

Mine.	Proprietor.	Number of holdings.
Silver	Pflucker Hermanos	17
,,	Compañia de Minas del Cármen	9
,,	Montero Hermanos	27
,,	Francisco Mendizábal y C^{a}	1
,,	José Maria de La-Torre	4
,,	Federico Fernandini	1
,,	J. M. Mendizabal y R. Cruz	2
,,	Mariano Mendizabal y HH.	1
,,	Compañia San Luis	1
,,	Cárlos M. Pflucker HH.	9
,,	José Sebastian Argumedo	1
,,	T. Conroy y T. A. Gorré	1
,,	F. Piana y L Nigra	4
,,	Ricardo M. Mahr	3
,,	J. Schultz y C^{a}	1
,,	Emiliano Llona y C^{a}	4
,,	Francisco Mendizabal	4
,,	R. Mahr y J. Urizar	3
,,	P. Sieveking, F. La Torre Bueno & others	4
,,	Tomás Conroy	3
,,	Cármen K. de Mendizabal	2
,,	Aurelio Bravo	1
,,	Francisco B. Mendizabal	1
,,	Enrique J. Garland	4
,,	F. de La-Torre, B. J. Sieveking & others	3
,,	Enrique Stuber	3
,,	José Bannoni	2
,,	Julio Dieckchff	1
,,	Edmundo Solff	1
,,	J. Galvez, Tomás Barnar y Jorge Paqué	3
,,	Pedro Félix Remy	1
,,	Alvino Carranza y Alejandro Haza	2
,,	Emiliano Llona	1
,,	Emiliano Llona y C^{a}	4
,,	Marcelino Botoni y Cárlos Duterán	1
,,	Calixto Landa y T. Gorje	1
,,	F. J. Alvarez y J. Zacharías	1
,,	Demetrio F. Bravo	1
,,	Felipe Guerra	3
,,	Teófilo Goré y Pedro Villanueva	1
,,	Lizandro Montes	4

YAULI—*continued.*

Mine.	Proprietor.	Number of holdings.
Silver	Blas Buscoviche y H.	2
Pyrites	Pflucker Hermanos	1
Cinnabar	Montero Hermanos	1
Coal	Cárlos M. Pflucker HH.	5
,,	Francisco B. Mendizabal	1
,,	Blas Buscoviche y H.	1
Silver and copper	Francisco Alvarez	1
	HUAROCHIRI.	
Silver	Sociedad de los Andes	7
,,	Compañia de Minas Americana	8
,,	Leonidas Aveleira	10
,,	Demetrio Olavegoya	1
,,	Compañia Casapalca	7
,,	José Pereyra	3
,,	Amalia G. de Solis	3
,,	D. Olavegoya, executors of	1
,,	Enrique J. Garland	3
,,	Geraldo Garland	4
,,	Pablo G. Solis	1
,,	A. Garland y C^{a}	7
,,	Enrique Juan Garland	2
,,	Juan Harris y J. P. Sewell	3
,,	Juan Harris	2
,,	Compañia de Minas del Cármen	5
,,	Aveleira y C^{a}	2
Silver, lead and sulphur	Alejandro Delboy y C^{a}	4
	JAUJA.	
Silver	Bernardo Pruss	1
	YAUYOS.	
Silver	Matias Flores	9
	ICA.	
Copper	A. Garland y C^{a}	8
	CHANCAY.	
Silver	Jacinto Arrieta	2
,,	Luis Peraldo & others	3
Silver and lead	Federico Verástegui y Manuela Bao	2, 3
	AREQUIPA.	
Coyper and silver	Cárlos Wagner y C^{a}	1

PUNO.

Mine.	Proprietor.	Number of holdings.
Silver	Cárlos Wagner y Cª	2
,,	Adolfo Guinacci, Francisco Bonati y Gerónimo Costa	1
,,	Juan Martin Echenique	1
,,	Adrian Moens	1
,,	Mariano Bustamente y Barreda	7
Quicksilver	Gerónimo Costa	3
Gold	Justa R. Valdez, Luis Dahnsen y Jorge Yóskuhl	1
,,	José María Peña	2

CASTRO VIREYNA.

Not indicated	C. M. Pflucker y HH	2

CAYLLOMA.

Gold and silver	Mateo Corona y Cª	7

LAMPA.

Silver	Mariano y Lorenzo y Carrion	2
,,	Manuel Jaen y Marcelino Salas	1
,,	Feliciano Rivas	1
Copper	Agustin Pastor y Feliciano M. Rivas	1
Not stated	Agustin Pastor y Federico Luna	1

SUMMARY.

Silver Mines	1,171
Coal	70
Copper	66
Petroleum	29
Gold and Silver	25
Silver and Lead	23
Silver and Copper	20
Gold	16
Not specified	13
Sulphur	12
Silver and Zinc	4
Cinnabar	4
Pyrites	1
Silver and Quicksilver	1
Gold Washing	1
	1,456

The Register also contains the official number of the mine, the name, dimensions, and the locality in which it is situated.

CHAPTER XI.

Political Organisation.—Departments and Provinces.—Education, &c.

THE Peruvian Republic proclaimed its independence on the 28th of July, 1821. The executive power is exercised by the President of the Republic, whose term of office lasts four years. The executive functions are shared with the President and Vice-President by five Ministers of State, who are responsible for the acts they countersign. The constitution of the State is divided into three independent bodies,—the executive power, the legislative power (a Senate of 50 and a Chamber of 110 members), and the judicial power. Each province, as also the capital, Lima, elects its deputies by the indirect vote of the people, who nominate the electors, and these the President of the Republic, the senators, and the deputies.

The Republic is divided into nineteen Departments, which are governed by a prefect; and the departments into provinces, which are each governed by a sub-prefect. The President elects the prefects and sub-prefects. All questions of disputed claims against the Government are settled by the Supreme Court of Justice. The provincial constitutions are bound to insure to each province its administration of justice, its municipal system, and primary education. The local government, or municipal corporation, established in each town, is called *Juntas Municipales*. The members are elected from amongst the most influential inhabitants, who conduct all matters relating to local affairs. The chief magistrate, or mayor, is called the *Alcalde Municipal*, and the other members of the corporation are the *Teniente Alcalde*, *Syndic* (judge), two *Jucces de Paz* (justices of the peace), and three *Regidores* (aldermen). Serious charges are tried by the *Juez Derecho*, or judge of the province, and the capital of each Department has a supreme court, where cases of importance are dealt with, the highest tribunal being the Supreme Court at Lima.

MALE POPULATION OF PERU, ACCORDING TO THE OFFICIAL CENSUS OF 1876.

Obliged to pay the Personal Tax according to the law of November 14, 1886.[1]

DEPARTMENT OF ANCACHS.

HUARI.	
Chacas	5,826
HUARI	4,503
San Luis	3,797
Llamellin	3,638
Huachis	3,256
Uco	2,436
Huantar	1,747
San Marcos	1,608
Chavin	1,547
	28,358

HUARAZ.	
Aija	2,518
Carhuaz	8,258
Cotaparaco	1,105
HUARAZ	6,891
Yangas	1,401
Marca	925
Pampas	1,650
Pararin	820
Pariacoto	741
Recuay	2,275
Yungar	1,033
	27,617

HUAYLAS.	
Ancachs	7,491
CARAZ	4,225
Huata	748
Huaylas	2,630
Macate	1,712
Mato	953
Mancos	1,381
Pamparomas	1,551
Pueblo Libre	1,842
Shupluy	924
Quillo	812
	24,269

CAJATAMBO.	
Acas	422
Ambar	404
Andajes	306
Aquia	642
Caujul	477
Cochas	262
Cochamarca	356
Cajacay	812
CAJATAMBO	1,251
Chiquiam	1,021
Gorgor	956
Huasta	796
Huancapon	465
Huayllacayan	709
Mangas	783
Ocros	1,097
Oyon	1,290
Pacllon	525
Pachangará	588
Ticllos	1,142
	14,304

PALLASCA.	
Cabana	1,670
CORONGO	2,791
Llapo	1,153
Pallasca	3,261
Tauca	1,334
	10,209

POMABAMBA.	
Parobamba	3,586
Piscobamba	7,339
POMABAMBA	4,550
Sihuas	4,195
	19,670

[1] This law established a tax to be paid by all males above twenty-one years and under sixty years, of one sole, paid half-yearly by those living in the Sierra, and two soles by those living on the Coast.

DEPARTMENT OF ANCACHS—*continued.*

SANTA.	
Casma	4,189
Huarmey	651
Moro	1,698
Nepeña	3,652
Santa	2,157
Yautan	424
	12,771

SUMMARY.	
Huari	28,358
Huaraz	27,617
Huaylas	24,269
Cajatambo	14,304
Pallasca	10,209
Pomabamba	19,670
Santa	12,771
	137,198

DEPARTMENT OF AMAZON.

BONGARÁ.	
Copallin	311
Jumbilla	375
Peca	101
San Carlos	348
Shipasbamba	300
Yambrasbamba	179
	1,614

CHACHAPOYAS.	
Balsas	188
Chachapoyas	1,863
Chiliquin	288
Chuquibamba	168
Huancas	314
Jalca	565
Levanto	188
Leymebamba	429
Molinopampa	328
Olleros	426
Omia	249
Quinjalca	533
Santa Rosa	161
San Nicolas	832
Soloco	445
Soquia	557
Totora	428
	7,962

LUYA.	
Bagua	248
Colcabamba	282
Colcamar	526
Conila	401
Jamalca	279
Lamud	831
Lonya Chico	537
Lonya grande	471
Laja	637
Ocalli	310
Ocumal	409
Pisuqui	295
San Gerónimo	401
Santo Tomás	596
Tingo	366
Yamon	149
	6,738

SUMMARY.	
Bongará	1,614
Chachapoyas	7,962
Luya	6,738
	16,314

DEPARTMENT OF APURIMAC.

ABANCAY.	
ABANCAY	2,417
Circa	945
Curahuasi	2,404
Lambrama	1,165
Pichishua	1,272
	8,203

ANDAHUAYLAS.	
ANDAHUAYLAS	2,187
Chincheros	3,573
Huancarama	2,870
Huancaray	3,057
Occobamba	1,966
Ongoy	1,483
Pampachiri	2,217
San Gerónimo	4,207
Talavera	2,175
	23,735

ANTABAMBA.	
ANTABAMBA	1,508
Oropesa	593
Pachaconas	445
Sabayno	860
	3,406

AYMARAES.	
Colcabamba	1,844
CHALHUANCA	2,532
Chapimarca	1,004
Sorayo	1,842
Tapayrihua	1,739
	8,961

COTABAMBAS.	
Cotabambas	2,081
Chuquibambilla	2,443
Haquira	1,453
Huayllati	1,882
Mamara	1,944
Mara	2,461
TAMBOBAMBA	2,407
	14,671

SUMMARY.	
Abancay	8,203
Andahuaylas	23,735
Antabamba	3,406
Aymaraes	8,961
Cotabambas	14,671
	58,976

DEPARTMENT OF AREQUIPA.

CASTILLA.	
Andagua	513
APLAO	968
Chachas	855
Choco	515
Huancarqui	1,768
Orcopampa	600
Pampacolca	3,345
Uraca	775
Viraco	3,275
	12,614

LA UNION.	
Alca	3,040
COTAHUASI	1,436
Charcana	510
Huaynacotas	1,082
Pampamarca	668
Quechualla	417
Sayla	665
Tomepampa	461
Toro	742
	9,021

DEPARTMENT OF AREQUIPA—*continued.*

AREQUIPA.

AREQUIPA	12,733
Cayma	1,589
Characato	852
Chiguata	776
Paucarpata	1,480
Pocci	724
Quequeña	1,074
Sabandia	524
Sachaca	1,329
Socabaya	1,327
Tiabaya	1,465
Uchumayo	531
Vitor	803
Yanahuara	2,010
Yura	462
	27,679

CAMANA.

Acari	1,197
Atiquipa	118
CAMANA	2,883
Carabelí	1,883
Chala	207
Chaparra	361
Huanuhuanu	141
Jaqui	376
Ocoña	685
Quicacha	423
Sihuas	284
Yauca	158
	8,716

ISLAY.

ISLAY	1,046
Quilca	331
Tambo	3,598
	4,975

CAYLLOMA.

Achoma	320
Cabanaconde	1,116
Callalli	535
CAYLLOMA	1,157
Coporaque	290
Chivay	597
Ichupampa	208
Lari	332
Lluta	442
Maca	243
Madrigal	228
Sihuas	651
Tapay	687
Tisco	707
Tuti	522
Yanque	783
	8,818

CONDESUYOS.

Andaray	623
Cayaracu	373
CHUQUIBAMBA	2,527
Salamanca	963
Yanaquihua	738
	5,224

SUMMARY.

Arequipa	27,679
Camaná	8,716
Castilla	12,614
Condesuyos	5,224
Caylloma	8,818
Islay	4,975
La Union	9,021
	77,047

DEPARTMENT OF AYACUCHO.

CANGALLO.

Canaria	1,101
CANGALLO	1,565
Carapo	576
Colca	622
Chuschi	1,260
Hualla	1,925
Huambalpa	—
Huancuraylla	557
Paras	764
Sancos	914
Totos	769
Vischongo	558
	10,611

HUAMANGA.

Acos Vinchos	1,668
AYACUCHO	4,618
Chiara	918
Quinua	1,739
Santiago	1,821
Socos Vinchos	2,342
Tambillo	2,035
	15,141

HUANTA.

Huamanguilla	2,442
HUANTA	3,048
Luricocha	1,927
	7,417

LA MAR.

Auco	2,377
Chungui	2,253
San Miguel	4,562
Tambo	3,318
	12,510

LUCANAS.

Aucará	947
Cabana	1,062
Charhuanca	382
Chipao	843
Huacaña	488
Laramate	1,542
Otoca	703
Pacyo	540
PUQUIO	1,572
Querobamba	931
Sancos	540
San Juan	939
Santa Lucia	382
Soras	430
	11,301

PARINACOCHAS.

Colta	822
CORACORA	2,023
Corculla	774
Chumpi	872
Lampa	1,785
Oyolo	1,035
Pacapausa	1,641
Pararca	749
Pausa	1,197
Pullo	1,094
	11,992

SUMMARY.

Cangallo	10,611
Huamanga	15,141
Huanta	7,417
Lucanas	11,301
Parinacochas	11,992
La Mar	12,510
	68,972

DEPARTMENT OF CAJAMARCA.

CAJABAMBA.	
Cachachi	1,517
CAJABAMBA	1,827
Cauvay	603
Colcabamba	713
Huceyllabamba	648
Pampa	829
Nuñunabamba	519
Purihual	435
Sayapullo	751
Sitacocha	1,292
	9,134

CAJAMARCA.	
Asuncion	2,016
CAJAMARCA	6,937
Cospan	1,644
Chetilla	690
Encañada	1,391
Ichocan	2,238
Jesus	2,498
Llacanova	619
Magdalena	449
Matará	748
San Márcos	3,452
San Pablo	3,746
	26,425

CELEDIN.	
CELEDIN	1,943
Chumuch	866
Huashmin	580
Huauco	898
Lucmapampa	684
Sorochuco	1,308
	6,279

CONTUMAZÁ.	
Casqas	1,760
Contumazá	2,577
Guzmango	1,255
Trinidad	982
	6,574

CHOTA.	
Cachen	1,181
Cochabamba	1,333
Cutervo	3,182
Chata	6,463
Huambos	1,522
Lajas	1,926
Llama	1,384
Paccha	836
Pion	366
Querocoto	1,032
Sócota	1,003
Tacabamba	3,898
	24,126

HUALGAYOC.	
Bambamarca	3,947
Hualgayoc	4,285
Llapa	2,203
Niepos	1,457
San Gregorio	1,084
Santa Cruz	3,429
San Miguel	5,143
	21,548

JAEN.	
Bellavista	281
Callayuc	535
Colasay	1,096
Cujillo	435
JAEN	569
Choros	123
Jaen	509
Pimpingos	494
Querocotillo	788
Sallique	370
San Ignacio	675
San Felipe	386
Tabaconas	364
	6,625

DEPARTMENT OF CAJAMARCA—*continued.*

SUMMARY.

Cajabamba	9,134
Cajamarca	26,425
Celedin	6,279
Contumazá	6,574
Carried forward	48,412
Brought forward	48,412
Chota	24,126
Hualgayoc	21,548
Jaen	6,625
	100,711

PROVINCE OF CALLAO.

Callao, including Bellavista	20,218

DEPARTMENT OF CUZCO.

AUTA.

AUTA	3,918
Limatambo	3,122
Zuritc	3,561
	10,601

ACOMAYO.

ACOMAYO	3,153
Pomacanchi	2,522
Rondocan	1,391
Sangarará	1,732
	8,798

CALCA.

CALCA	3,367
Lares	1,475
Pisac	2,256
	7,098

CANAS.

Coporaque	4,233
Checca	1,918
Languí	1,613
Layo	1,112
Ocoruro	478
Pichihua	1,570
YANAOCA	1,841
Yauri	4,451
	17,216

CANCHIS.

Cacha	2,446
Checcacupe	2,851
Marangani	2,143
Pampamarca	1,166
SICUANI	6,437
Tinta	2,908
	17,951

CUZCO.

CITY OF CUZCO.	Belen	536
	Matriz	3,820
	San Blas	803
	S. Cristobal	537
	Santa Ana	395
	Santiago	611
	S. Jeronimo	1,296
San Pedro		1,389
San Sebastian		1,098
		10,485

CHUMBIVILCAS.

Capacmarca	594
Colquemarca	3,207
Chamaca	874
Livitaca	...
Sto. Tomas and Llusco.	3,550
Velille	782
	9,007

DEPARTMENT OF CUZCO—*continued.*

PAUCARTAMBO.	
Caycay	1,609
Colquepata	1,059
Ccatcca	1,483
Challabamba	1,100
PAUCARTAMBO	1,871
	7,122

QUISPICANCHI.	
Marcapata	1,028
Ocongate	1,354
Oropeza	2,260
Quiquijana	3,113
URCOS	2,484
	10,239

PARURO.	
Accha	1,688
Collcha	894
Ccapi	894
Huanoquite	1,270
Omacha	1,259
PARURO	2,459
	8,464

URUBAMBA.	
Maras	3,083
Ollantay-tambo	1,308
URUBAMBA	3,467
	7,858

CONVENCION.	
Echaratí	1,329
Huayopata	926
Occobamba	794
SANTA ANA	2,326
	5,375

SUMMARY.	
Acomayo	8,798
Auta	10,661
Calca	7,098
Canas	17,216
Canchis	17,951
Convencion	5,375
Cuzco	10,485
Chumbivilcas	9,007
Paruro	8,464
Paucartambo	7,122
Quispicanchi	10,239
Urubamba	7,858
	120,214

DEPARTMENT OF HUANCAVELICA.

CASTROVIREYNA.	
Arma	899
CASTROVIREYNA	679
Cordova	1,775
Chavin	768
Huachos	626
Huangascar	691
Huaytará	474
Pilpichaca	824
Chocarvo	1,229
	7,965

TAYACAJA.	
Auco	1,315
Colcabamba	2,227
Huaribamba	1,861
Locroja	1,664
Mayoc	1,885
PAMPAS	3,806
Paucarbamba	2,470
Salcabamba	2,450
Surcubamba	1,464
	19,142

DEPARTMENT OF HUANCAVELICA—*continued.*

ANGARAES.		HUANCAVELICA.	
ACOBAMBA	3,804	Acoria	4,437
Caja	2,316	Conayca	1,221
Julcamarca	3,597	HUANCAVELICA	3,970
Lircay	3,244	Moya	2,174
	12,961		11,802

SUMMARY.

Angaraes	12,961
Castrovireyna	7,965
Huancavelica	11,802
Tayacaja	19,142
	51,870

DEPARTMENT OF HUANUCO.

DOS DE MAYO.		HUAMALIES.	
AGUAMIRO	1,280	Arancay	687
Baños	1,127	Huacaybamba	1,362
Chavin	1,746	Huacrachuco	2,312
Chupan	1,633	Llata	2,246
Huallanca	849	Monzon	783
Jesus	1,298	Pinza	1,984
Obas	1,667	Singa	1,412
Pachas	1,701		10,786
	11,301		
HUANUCO.		SUMMARY.	
Chinchas	1,354	Dos de Mayo	11,301
Higueras	1,918	Huamalies	10,786
Huacar	2,821	Huánuco	17,195
HUANUCO	5,134		39,282
Panas	2,413		
Pozuzo	248		
Santa Maria del Valle	3,307		
	17,195		

DEPARTMENT OF ICA.

ICA.	
Ica	4,916
Nazca	1,716
Palpa	1,901
Pueblo Nuevo	2,244
S. Juan Bautista	3,734
Santiago	1,473
Yauca	610
	16,594

CHINCHA.	
Chincha Alta	8,259
Chincha Baja	4,690
Humay	1,010
Pisco	4,217
Tambo Mora	416
	18,592

SUMMARY.	
Chincha	18,592
Ica	16,594
	35,186

DEPARTMENT OF JUNIN.

JAUJA.	
Apata	3,854
Cincos	1,782
Comas	2,604
Concepcion	2,526
Huaripampa	2,703
Jauja	10,341
Mito	2,368
Orcotuna	2,440
	28,618

PASCO.	
Cariva	4,356
Cerro	4,775
Chacayan	2,709
Huancabamba	428
Huariaca	4,327
Huayllay	491
Ninacaca	1,282
Yanahuanca	3,912
	22,280

HUANCAYO.	
Colca	2,556
Chongos	1,645
Chupaca	5,729
Huancayo	4,902
Carried forward	14,832

Brought forward	14,832
Pariahanca	2,632
San Gerónimo	2,940
San Juan	1,691
Sicaya	1,450
Zapallanga	4,950
	28,495

TARMA.	
Acobamba	4,878
Carhuamayo	2,296
Chanchamayo	1,071
Junin	3,872
Marcapomacocha	630
Tarma	6,667
Vitor	618
Yauli	2,572
	22,604

SUMMARY.	
Huancayo	28,495
Jauja	28,618
Pasco	22,280
Tarma	22,604
	101,997

DEPARTMENT OF LAMBAYEQUE.

LAMBAYEQUE.	
Ferriñafe	4,041
Jayanca	1,597
LAMBAYEQUE	4,315
Mochumi	1,121
Morrope	2,435
Motupe	3,110
Almos	2,075
Pacora	814
Salas	5,944
San José	867
	26,319

CHICLAYO.	
CHICLAYO	6,775
Chongoyape	990
Eten	2,063
Lagunas	585
Monsefú	4,341
Picsi	2,004
Reque	780
Saña	1,715
	19,253

SUMMARY.	
Chiclayo	19,253
Lambayeque	26,319
	45,572

DEPARTMENT OF LIBERTAD.

PATAZ.	
Bambamarca	753
Buldibuyo	1,177
Cajamarquilla	687
Chilia	1,853
Huancaspata	2,239
Huaylillas	504
Guayo	459
PARCOY	921
Pataz	2,100
Soledad	274
Tayabamba	3,046
Uchumarca	274
	14,167

PACASMAYO.	
Chepen	2,417
Guadalupe	2,150
Jequetepeque	463
PACASMAYO	566
Pueblo Nuevo	460
San José	747
San Pedro	2,541
	9,344

OTUZCO.	
Charat	877
Huaranchal	398
La Cuesta	321
Lucma	907
Marmot	415
OTUZCO	5,238
Salpo	1,034
Sinsicap	1,245
Usquil	3,939
	14,374

TRUJILLO.	
Ascope	3,657
Chicama	1,452
Chocope	1,904
Huanchaco	350
Mngdal. de Cao	562
Moche	669
Payjan	1,525
Santiago de Cao	1,296
Simbai	654
TRUJILLO	5,585
Virú	1,740
	19,394

DEPARTMENT OF LIBERTAD—*continued.*

HUAMACHUCO.

HUAMACHUCO	7,301
Marcabal	1,263
Mollepata	2,774
Stgo. de Chuco	5,882
Sartirubamba	1,702
	18,922

SUMMARY.

Huamachuco	18,922
Otuzco	14,374
Pacasmayo	9,344
Pataz	14,167
Trujillo	19,394
	76,201

DEPARTMENT OF LIMA.

CANTA.

Araguay	659
Atavillos altos	673
Atavillos bajos	814
CANTA	1,340
Huamantanga	1,842
Lampian	804
Pacaraos	664
S. Buenaventura	708
	7,504

CAÑETE.

CAÑETE	2,996
Coayllo	630
Chilca	1,076
Lunahuaná	2,960
Mala	1,344
Pacarán	743
San Luis	3,093
	12,842

HUAROCHIRI.

Carampoma	524
Casta	552
Chorrillos	861
Huarochiri	809
MATUCANA	1,086
Olleros	314
Quinti	837
San Damian	644
San Mateo	832
Santa Eulalia	665
	7,124

CHANCAY.

Aucallama	1,559
Barranca	1,596
Chancay	3,158
Checras	1,154
HUACHO	4,864
Huaura	2,602
Ihuari	759
Paccho	1,203
Pativilca	2,611
Sayan	1,554
Supe	1,704
	22,764

LIMA.

Ancon		379
Ate		2,107
Barranco		553
Carabayllo		3,190
Chorrillos		2,373
CIUDAD.	Ctel. 2° 8,541 ...	
	Id. 2° 14,479 ...	
	Id. 3° 10,131 ...	52,239
	Id. 4° 10,503 ...	
	Id. 5° 11,585 ...	
Lurigancho		1,036
Lurin		1,049
Magdalena		1,089
Miraflores		682
Pachacamac		756
Surco		1,310
		66,763

DEPARTMENT OF LIMA—*continued.*

YAUYOS.	
Ayaviri	463
Chupamarca	809
Huañec	1,048
Laraos	1,837
Omas	320
Pampas	1,183
Tauripampa	497
Vinac	361
YAUYOS	1,110
	7,628

SUMMARY.	
Canta	7,504
Cañete	12,842
Chancay	22,764
Huarochiri	7,124
Lima	66,763
Yauyos	7,628
	124,625

DEPARTMENT OF LORETO.

ALTO AMAZONAS.	
Andoas	.....
BALZAPUERTO	603
Cahuapanas	732
Jeveros	853
Lagunas	733
Santa Cruz	470
Yurimaguas	652
	4,043

BAJO AMAZONAS.	
IQUITOS	1,565
Loreto	786
Nauta	1,699
Parinarí	578
Pevas	584
	5,212

HUALLAGA.	
Catalina	232
Juanfui	466
Lamas	4,302
Pachíza	451
Saposoa	1,992
Sarayacu	317
TARAPOTO	5,440
Tingo Maria	763.
	13,963

MOYOBAMBA.	
Calzada	526
Habana	614
MOYOBAMBA	4,728
Rioja	2,315
Soritor	743
	8,926

SUMMARY.

Alto Amazonas	4,043
Bajo Amazonas	5,212
Huallaga	13,963
Moyobamba	8,926
	32,144

PROVINCE OF MOQUEGUA.

Carumas	1,154
Yehuua	1,007
Ilo	494
MOQUEGUA	4,272
Onrate	1,733
Puquina	1,799
Torata	2,757
Ubinas	1,303
	14,519

DEPARTMENT OF PIURA.

AYABACA.

AYABACA	7,459
Cumbicus	2,350
Chalaco	2,531
Frias	3,920
Suyo	1,151
	17,411

HUANCABAMBA.

HUANCABAMBA	5,073
Huarmaca	2,636
Sondor	737
	8,446

PAYTA.

Amotape	1,503
Arenal	336
Colan	986
Huaca	1,299
PAYTA	1,053
Querecotillo	1,697
Sullana	3,204
	10,168

TUMBES.

Corrales	1,078
S. Juan de la Virgen.	568
Tarumilla	167
TUMBES	1,127
	2,940

PIURA.

Castilla	620
Catacaos	9,187
Chulucanas	2,711
Morropon	2,301
PIURA	2,962
Salitral	613
Sechura	4,534
Tambo Grande	3,896
	26,824

SUMMARY.

Ayabaca	17,411
Huancabamba	8,446
Payta	10,168
Piura	26,824
Tumbes	2,940
	65,789

DEPARTMENT OF PUNO.

AZANGARO.

Achaya	905
Arapa	1,798
Asillo	3,093
AZANGARO	4,846
Caminaca	1,004
Chupa	1,679
Munani	1,300
Potoni	702
Pupuja	2,284
Putina	1,803
Saman	2,407
San Anton	802
San José	973
	23,596

CARABAYA.

Ajoyani	172
Ayapata	1,096
Coasa	882
Corani	478
Crucero	590
Ytuata	797
Macusani	720
Ollachea	517
Usicayos	409
	5,661

PUNO.

Acora	4,142
Atuncolla	1,031
Cabana	1,926
Capachica	2,936
Caracoto	2,451
Coata	775
Chucuito	3,381
Juliaca	3,124
Paucarcolla	1,019
Pichacani	969
PUNO	3,574
San Antonio	341
Tiquillaca	1,097
Vilquo	1,473
	28,239

CHUCUITO.

Desaguadero	448
Huacullani	967
Ylave	5,544
Julir	2,913
Pisacoma	560
Pamata	1,972
Santa Rosa	752
Yunguyo	3,866
Zepita	4,097
	21,119

HUANCANÉ.

Cojata	1,189
Conima	1,616
HUANCANE	4,670
Inchupalla	1,314
Moho	3,729
Pusi	1,057
Rosaspata	1,771
Taraco	2,063
Vilque chico	4,639
	22,048

LAMPA.

Ayaviri	3,737
Cabanilla	2,383
Calapuja	338
Cupi	376
LAMPA	3,202
Llalli	386
Macari	2,473
Nicasio	486
Nunoa	1,188
Ocuviri	475
Orurillo	2,535
Pucará	1,704
Santa Rosa	1,468
Umachiri	974
Vilavila	303
	22,028

DEPARTMENT OF PUNO—*continued.*

SANDIA.	
Cuyo-Cuyo	1,145
Patambuco	801
Poto	412
Phora	945
Quiaca	427
SANDIA	2,560
Sirca	376
	6,666

SUMMARY.	
Azangaro	23,596
Carabaya	5,661
Chucuito	21,119
Huancané	22,048
Lampa	22,028
Puno	28,239
Sandia	6,666
	129,357

GENERAL SUMMARY OF DEPARTMENTS.

DEPARTMENTS.	Total Male Population.	Foreign Male Population.	Peruvians from 21 to 60 yrs.	Total liable to pay tax.
Amazonas	16,314	10	7,155	7,165
Ancachs	137,198	4,396	53,264	57,660
Apurimac	58,976	27	26,491	26,518
Arequipa	77,047	2,180	31,251	33,431
Ayacucho	68,972	66	32,070	32,136
Cajamarca	100,711	510	38,981	39,491
Callao	20,218	6,973	5,487	12,460
Cuzco	120,214	133	53,743	53,876
Huancavelica	51,870	13	21,694	21,707
Huánuco	39,282	253	15,635	15,888
Ica	35,186	5,944	13,434	19,378
Junin	101,997	647	42,086	42,733
Lambayeque	45,572	4,226	17,180	21,406
La Libertad	76,201	9,547	28,639	38,186
Lima	124,625	32,222	40,352	72,574
Loreto	32,144	373	11,819	12,192
Moquegua	14,519	874	5,615	6,489
Piura	65,789	1,261	24,711	25,972
Puno	129,357	825	55,770	56,595
Tacna	.....	.....	.....	.....
Total Males	1,316,192	70,480	525,377	595,857
,, Females.	1,305,732			
Grand total	2,621,924			

EDUCATION.

Education has received great attention at the hands of the Government of late years in Peru. There are six universities,—at Lima, Cuzco, Arequipa, Truxillo, Puno, and Guamango. The State supports thirty-three colleges for men, and eighteen for women; 1,578 schools for boys, and 729 for girls. Lima itself has eight national colleges; one for the study of jurisprudence; an ecclesiastical seminary; a college for the study of medicine and other sciences; one for secondary instruction; a normal school; a naval and military institute; a college for obstetrics; a school of art and trades; an industrial municipal school; and the School of Civil Engineering and Mines. Altogether there are 112 establishments in Lima for educational purposes, thirty-nine for boys, sixty-eight for girls, and six mixed. The money voted by the State for educational purposes in 1877 amounted to 2,124,407 soles (£431,102) a year.

The School of Civil Engineering and Mines was founded in 1876, with a staff of eminent professors; this institution, which is the first of its kind in South America, is doing inestimable service in preparing the youths of Peru with a sound and practical knowledge of engineering and mineralogical science, which is indispensable for the pursuit of mining industry, and exceedingly necessary in a country like Peru, upon which its future so much depends. There are also in the capital the following public establishments:—a public library, museum, gallery of paintings, meteorological observatory, seventeen hospitals and asylums; seventeen societies, including benevolent and charitable institutions, gymnasium, &c.; seventeen clubs, including English, German, and Italian, English cricket, lawn tennis, &c.

Peru has produced many excellent sculptors and painters. Amongst the latter the name of Monteros stands pre-eminent. His celebrated painting, "The Funeral Obsequies of Atahualpa, the Last of the Incas," has been described as a grand masterpiece, and one of the most famous of modern paintings.

EMINENT MEN OF SCIENCE.

Peru has produced many eminent men in literature and science, amongst whom Señores Mariano Felipe Paz Soldan and Antonio Raimondi will be ever remembered in the country's history for their deep researches, and the valuable works they have contributed for their country's fame and benefit. The former is famous for his renowned travels and geographical surveys. He has left a most complete geographical work of the country—an atlas and a dictionary, the most perfect work ever published.

It is from Señor Paz Soldan's Atlas that the map which accompanies this work has been carefully compiled. Peru has only lately mourned the loss of her eminent citizen and devoted worker, Señor Paz Soldan, who died on the 31st December, 1886, aged sixty-five years, it is said of broken heart at his country's misfortunes. In the "Proceedings of the Royal Geographical Society," for June, 1887, Mr. Clements Markham, C.B., pays a just tribute to the memory of the late Señor Paz Soldan, who was an honorary member of the Society.

The name of Señor Antonio Raimondi is honoured throughout the whole scientific world for his valuable contributions to all branches of science. He is one of the most eminent men Peru has ever produced. His energies in promoting the interests of Peru have been ceaseless. He has travelled from one extremity of the country to the other, fearless of dangers,—amongst the savage tribes, studying their customs, and descending unknown rivers, collecting minute accounts of all the natural history, geography, geology, antiquities, botany, zoology, mineralogy, &c., of the country; and he has compiled several stupendous volumes relating to his studies. Thanks to Providence his valuable life is yet spared to Peru, and he is still actively engaged in completing his great work in order that the vast resources of the country may be properly known.

On many occasions these two eminent men have contributed papers of great interest to the Royal Geographical Society, London, and lately the worthy Chairman said in reference to these devoted scientists—"That so long as Peru has such men as Paz Soldan and Raimondi to guide her, she must progress."

CHARACTER OF THE PERUVIAN PEOPLE.

The hospitality of the Peruvian people is acknowledged by all Europeans who have visited Peru. They are also very charitable, as testified by the numerous institutions supported by voluntary contributions.

The Peruvian ladies are well known for their domestic attachment and patriotism. Their merits were admirably displayed during the late war, when they made great sacrifices for their country's cause, by giving up, not only their money, but their jewellery and other valuables.

Eminent English and German travellers to Peru have testified to the noble and genial character of the Peruvian ladies.

Dr. Hutchinson, late H.B.M. Consul to Peru, in his work, "Two Years in Peru," says:—"Much has been said, and with very good reason, of the beauty of the ladies of Lima. During my two years' residence out there, I have seen many of them exceeding, in every grace of womanhood, even the angelic designs of Dr. Fuentes' work. But as I know a good deal has been written condemnatory of their moral character, for which depreciation I believe there exists little foundation, I consider it my duty to protest against such unmanliness. I have often heard the changes rung upon the same topic, in reference to Paraguay, the Banda Oriental, and the Argentine Republic, with all of which I am acquainted for fifteen years; and I have no hesitation in saying, from my experience of South America, that not only regarding Peru but elsewhere, within my knowledge, they are perfectly foundationless and equally untrue."

The ladies of Lima, in addition to their unimpeachable *morale*, can count amongst them numbers of high literary celebrity.

A PARTY OF LADIES AND GENTLEMEN OF LIMA GIVING A CONCERT FOR A CHARITABLE PURPOSE.

Stevenson says, *op. cit.*, vol. i, p. 390:—"Chastity is more common, and infidelity more uncommon, amongst the Peruvians than in most countries of the Old World."

Doctor von Tschudi, the great German traveller, thus describes the beauty of the Peruvian ladies:—"Nature has lavishly endowed them with many of her choicest gifts. In figure they are unusually slender, and rather tall; and they are especially remarkable for small, elegantly formed feet. Their fair faces are animated by large, bright, dark eyes. Their features are pleasing; the nose being well formed, though in general not small; the mouth invariably adorned with two rows of brilliant white teeth; and their long black hair, arranged in plaits, falls gracefully over the bosom and shoulders. Add to all this a captivating grace of manner and deportment, joined to an exceeding degree of gentleness and amiability, and it will be readily admitted that the Limeña (a Lima lady) is a noble specimen of female loveliness."

PERIODICAL PUBLICATIONS.

The following are DAILY newspapers:—*El Comercio, El Nacional, La Opinion Nacional, El Bien Publico, La Epoca, El Perú, El Artesano.*

BI-WEEKLY:—*El Sol, La Voz Monastica.*

WEEKLY:—*Revista Catolica, El Progreso, Perlas Flores, Revista Social, La Luz Electria, L'Echo du Perú.*

FORTNIGHTLY:—*El Monitor Medico, El Alteneo de Lima, La Voce d' Italia.*

MONTHLY:—*La Revista Masonica, La Cronica Medica, La Gaceta Cientifica, Boletin de Minos, Boletin de la Academia, Libri de Medicina, La Homeopatica, La Ilustracion Popular, La Rosa del Perú, Boletin de Adnanas, El Peruano* (Official Gazette).

CHAPTER XII.

Emigration Laws.

LAW FOR EUROPEAN IMMIGRATION OF 1873.

UNDER the enlightened government of Don Manuel Pardo, in 1873, statutes were drawn up, and a Society organised called the European Immigration Society, divided into five sections, for the purpose of establishing European colonies in Peru, as follows :—

1. England and Ireland.
2. France, Belgium, and Switzerland.
3. Germany, Austria, and Holland.
4. Sweden, Norway, and Denmark.
5. Italy, Spain, and Portugal.

The following is a copy of the law passed by Congress :—

MANUEL PARDO, CONSTITUTIONAL PRESIDENT OF THE REPUBLIC.

Whereas the Congress has passed the following law :—

The Congress of the Peruvian Republic considering :—

It being unquestionable that immigration contributes to the prosperity of nations, has passed the following law :—

ARTICLE 1.—The Executive Power is hereby authorised—

(1.) To expend the sum of 100,000 soles yearly in the encouragement of European immigration, on the basis which may be most suitable to each nation and to each kind of labouring class.

(2.) To distribute to the immigrants irrigated lands belonging to the nation.

(3.) The colonists will be obliged to repay the Treasury the expenses they may occasion, excepting those of transport, according to the conditions the Government may establish.

Given in the Government House, Lima, the 28th day of April, 1873.

(Signed) { MANUEL PARDO, *President.*
FRANCISCO ROSAS, *Minister of the Interior.*

According to the report of the Society, issued in 1876, 916 immigrants were sent from Europe, of which 856 were Italians, 35 Spaniards, 17 French, 1 German, and 7 miscellaneous nationalities. These were successfully established in various parts of the country, 380 of them being located in the Chanchamayo valley—the cost of their passage, implements, seeds, and materials, &c., being defrayed by the Peruvian Government—where they cultivate coffee, cocoa, rice, maize, tobacco, vanilla, plantains, pines, yucas, camiotes (kind of potato), papayas, &c., and possess horses, mules, pigs, cows, and poultry. Notwithstanding the attacks they at first received from the Indians (Chunchos), the colony is now progressing favourably, and is the first step for more extensive colonisation.

EMIGRATION TO PERU.

Extract from Report of the Peruvian Commissioners at the Agricultural Congress of Paris, 1878.

The important question of immigration, and principally that of establishing European colonies in Peru, is one of those questions the solution of which interests in the highest degree the agricultural and commercial industries of the country in general, as well as its economic future; it is for this reason that the Peruvian Government endeavours to favour immigration by all possible means. Up to the present time—if it is true that the efforts of the Administration have been crowned with a certain amount of success, since many immigrants have already settled in Peru—it is none the less true

that this result does not appear, however, to be altogether satisfactory, especially when we compare the immigration to Peru with that which flows from the Old Continent, for example, to the United States, Brazil, and the Argentine Republic. Peru offers to colonists, as much by its agriculture as by its mines, conditions as advantageous, if not better, than those of any of the countries of North and South America can offer them. The Peruvian people are affable and kind. In temperament they sympathise well with the European. How could it happen otherwise, when Peruvians of the well-to-do class are of European origin? Their habits and customs are those of the European race, their tendencies and aspirations the same. Peruvians see in the European immigrant a brother; they open their arms and offer him the greatest hospitality. The Peruvian Legislation is one of the most liberal, having been built up upon those of several European nations. The laws reconcile exclusive rights to nobody: *foreigners and native subjects are treated upon the same footing.*

"The State, with the object of favouring immigration, makes gratuitous concessions of land to the colonists, on conditions especially advantageous, and such as no other country can equal. The Houses of Assembly and Representatives have at various times voted considerable sums of money for the purpose of increasing and facilitating European immigration. In fact, the expenses of transport of the immigrants from their countries to the place of colonisation have been entirely defrayed by the State, which, moreover, has paid to the colonists a certain daily sum of money, and has supplied them with implements, tools, seeds, and domestic animals on very advantageous conditions, according to the regulations of the Immigration Society. Notwithstanding all these advantages, immigration to Peru has only been in limited numbers, and not in proportion to the advantages that the country offers. Amongst the primary causes of this, the principal obstacle to European immigrants coming to Peru is the great distance that they have to travel before arriving at the place of their destination, in comparison with that which separates them from the United States, Brazil, or the Argentine Republic. When emigrants embark at their own expense, it is the

question of economy in money and time, which places them in the necessity of preferring the nearest centres of colonisation. Another cause is that Peru is one of the Republics in South America the least known and appreciated in its just value. Its institutions, far from being in decay, have entered the broad path of progress, and it is a country a hundred times, or rather a thousand times, richer than many think it to be."

"The Peruvian Government reserves the works on the coast for the Chinese immigrants, directing all its efforts for European colonisation to one of the most beautiful and most fertile regions of the whole world,—the *Chanchamayo Valley*. This region is situated on the eastern descent of the Andes, about 300 kilomètres (186 miles) from Lima. It belongs to the great valley of the Amazon, and more especially to the Ucayali, the principal affluent of the Amazon. This valley takes its name from the principal river which waters it, the Chanchamayo, formed by the junction of the Tulumayo and the Ulcumayo. The Chanchamayo,—the general course of which is more or less W.N.W.,—receives on its left bank the waters of the Paucartambo, where it takes the name of Perene, which runs in an easterly direction, and afterwards receives, on its right bank, the Ene, formed by the Apurumac and the Montaro; it continues the same course, under the name of the Tambo, and afterwards, flowing northerly, it unites with the Urubamba to form the Ucayali, which, in junction with the Marañon, constitutes the greatest river of the globe, known under the name of the Amazon. It is to the high part of the valley, watered by the Chanchamayo, Perene, and the Tambo, and their branches, that the Peruvian Government directs European emigration.

"Although the climate of the Chanchamayo is warm and humid, it is, nevertheless, well known to be very healthy, and hence it is that efforts have for a long time been made to profit by its very advantageous conditions. A line of railroad which is to unite the Pacific coast with the fruitful zone of the Montaña, and with other centres not less important from a mineral point of view, has already reached the summit of the Cordilleras, where the locomotive gives forth its shrieking whistle after rising to the height of 4,800

mètres (15,744 feet) without having to pass over a steeper gradient than four per cent.; in spite of that the direct distance that it passes does not exceed 170 kilomètres (105½ miles). The Transandean Callao-Lima Oroya Railroad, which, without contradiction, is one of the boldest undertakings that has been constructed up to the present time, will shortly place the rich Chanchamayo region in communication with the Pacific coast. This fertile valley can also be placed in connexion with the Atlantic, by means of steamers which navigate the Amazon, and which, proceeding up the Ucayali, the Tambo, and the Perene, come within some twenty leagues of the centre of the colony; or better, from the Ucayali, entering by the Pachetea, they can reach the waters of the Pichis, at the foot of the northern slope of the Cerro de la Sal (Salt Hills).

"Administratively the Chanchamayo district is situated in the province of Tarma, under the jurisdiction of the Junin Department. The geographical position of Fort San Ramon, situated at the angle formed by the confluence of the Tulumayo and the Oxabamba, to form the Chanchamayo, is at a height of 825 mètres (2,706 feet) above the level of the sea, and, according to Werthemann, is 11° 6′ 33″ lat. S., and 77° 37′ 36″ long. W. from the meridian of Paris. The present centre of the colony is La Merced, situated on the left bank of the Chanchamayo about eight kilomètres down the river from the San Ramon fort. This town, which at present numbers about 300 colonists, stands 730 mètres (2,400 feet) above the level of the sea, and occupies the site of an old Indian encampment.

"The climate of the Chanchamayo valley, as we have already said, is warm and humid. Rain falls in this valley frequently and copiously from October or November to April or May. The days are tolerably warm, and the nights somewhat cool. The maximum and minimum temperature varies between thirty and sixteen degrees centigrade. The mean annual temperature can be based upon regions climaterically analogous, comprised between twenty and twenty-one degrees centigrade. In spite of the high temperature, during the dry season the air remains almost saturated with humidity, and the wet and dry bulb thermometers show but little difference of temperature, according

to the result of the observations made by A. Werthemann. From a hygienic point of view, this warm and humid climate, without rigorous winters to invigorate the organism, would appear to be unhealthy for Europeans, compared with analogous climates, in which the white man has to abstain from hard and continuous work. Nothing of this kind is, however, manifested here; epidemic complaints are altogether unknown in Chanchamayo. This exceptional circumstance removes from this locality the inconveniences of its intertropical situation, preserving for it the advantage of being a healthy region. This is, no doubt, owing to its height, which reaches to 1,000 mètres (3,285 feet), and this situation makes it accessible to the fresh breezes from the east, which during the day moderate the heat of the sun, and prevents the stagnation of the miasms which would otherwise be formed under the combined and destructive influence of heat and humidity. The intermittent winds which blow on the Cordilleras also refresh these valleys. The absolute absence of epidemics in the Chanchamayo valley, and the freedom with which the white man can support himself there, working in the sun, without too much fatigue and without injury to his health, as has been proved by experience of over twenty years, that is, from the time when the first colonies were established in this valley, demonstrate that the presumed unsuitability of colonising the regions of the torrid zone with European populations is without foundation.

"The establishment of European colonies in the Chanchamayo and in the neighbouring regions, appears to us, at once, a solved problem, and as such, from under other points of view, a problem which interests greatly the economic condition of Peru, and explains at once the efforts which the Government are making to colonise these regions, and the considerable expense which has been incurred in the construction of a line of railway across the steep summit of the Cordilleras, a gigantic work, the transcendental importance of which is far from being appreciated."

EMIGRATION TO PERU.

The laws of Peru allow European immigration, and grant protection to foreigners in building on their property equally with natural-born citizens.

The Peruvian Government grants 250,000 square mètres of land free to every able-bodied person, upon condition that it is brought into cultivation.

CODIGO CIVIL OF PERU.

Extracts from the Civil Code of the Laws of Peru relating to Peruvian and Foreign Subjects:—

Art. 30.—The Constitution designates who are Peruvians, and who are foreigners.

Art. 31.—All Peruvians enjoy civil rights, unless they are such persons upon whom the law expresses prohibition.

Art. 32.—The civil rights are independent of the quality of citizens. (In whatever station of society a person may be, all enjoy the same rights.)

Art. 33.—Foreigners enjoy in Peru all the rights appertaining to the security of their persons and of their goods, and the free administration of the same.

Art. 34.—The acquisition of immovable property and the conditions of the trading of foreign subjects will depend on the treaties concluded with their respective nations, and of the laws and special regulations made.

Art. 35.—As regards the succession of foreign subjects, what is laid down in the chapters relative to the same in this code will be observed.

Art. 36.—No inhabitant of Peru can exempt himself from the fulfilment of the obligations contracted in the Republic made in conformity with the laws.

Art. 37.—Peruvians as well as foreigners domiciled in Peru, wherever they may be, can be cited before the tribunals of the Republic for the fulfilment of the contract which they may have entered into, even if in a foreign country, on matters which the laws of Peru allow to be contracted.

Art. 38.—Foreigners who may happen to be in Peru, although not domiciled, may be compelled to fulfil any contract entered into with a Peruvian, although in a foreign country, upon matters which may not be prohibited.

Art. 39.—The foreigner, although he may be absent from the Republic, may be cited before the tribunals of it. 1st. When the matter treats of any action concerning goods which are in Peru; 2nd. When it treats of any civil action, in consequence of crime or of a fault, which the foreigner may have committed in Peru; 3rd. When it treats of an obligation contracted with the foreigner, in which it may have been stipulated that the tribunals of Peru should decide the controversies relative to it.

Art. 40.—Whenever the matter treats of an obligation contracted in a foreign country, the laws of the country where it has been entered into will serve to adjudicate upon the contract, in so far that it may not be prohibited by the laws of Peru. The laws of Peru will only have effect when the contracting parties submit themselves to them.

Art. 41.—A Peruvian woman married to a foreigner, or a foreign woman married to a Peruvian, follow the condition of their husbands. If they so wish, the first may recover, and the second may keep, the quality of Peruvian citizenship, providing they reside in Peru.

Art. 42.—The privilege of civil rights may be suspended or lost, whenever a person may be so prohibited by the law.

Art. 43.—There cannot be solicited in Peru the fulfilment of obligations contracted between foreigners in a foreign country, except in the event that both parties submit themselves to the tribunals of the Republic.

The Civil Code lays down the law upon all matters referring to commercial transactions, &c., and a copy is deposited in all the Peruvian consular offices in England.

PROTECTION TO FOREIGNERS IN PERU.

LAW AFFECTING EMIGRATION.

The following is the communication made to MR. THOMAS J. HUTCHINSON, *late H.B.M. Consul in Peru, by the chief law officer,* SEÑOR PAZ SOLDAN, *on the above subject.*

Citizenship in Peru is obligatory on no one, nor is it denied without a just cause. To effect it there is first required the desire and request of the foreigner. The wish to be naturalised as a Peruvian must be first expressed; he must be twenty-one years of age, and possess some profession or trade, besides which he must be inscribed on the Civil List in the form prescribed by law. (Article XXXV. of the Constitution.)

Article XIX. of the Civil Register regulations sets forth the formalities, which are exceedingly easy and liberal, wherewith such an inscription is to be made. There have been established, and are in operation at the present time, many mercantile companies, many industrial, farming, manufacturing, saltpetre, mining, navigation, irrigation, and railway undertakings, whose promoters, owners, and agents are not citizens of Peru. Many other persons belonging to different countries have entered into contracts with the Government concerning various works, and have solicited and obtained the concession of privileges, in whose quiet possession they still are. It may be said that the greater part of the riches of Peru, and the most lucrative enterprises, are in the hands of foreigners without their having been called on to take out their papers as citizens. Foreign capital, which has been spent in taking advantage of the various kinds of resources that the country possesses, can reckon on every assurance of legal guarantees. Regarding many of these the nation has guaranteed them interest, which is a favour that has seldom been granted to the natives of the country.

The advantages and protection which foreigners find in Peru have led some of them to believe that they were in a better position, and even more privileged, than our own people. On this account some have pretended that political disturbances should not affect them, or that the State

should indemnify them for the losses which are the result of civil conflicts; in short, that there should be for them a special legislation, which in their own country they cannot find, and which they would look for in vain. These are facts which are patent and known to all; they are more decisive and conclusive than any measures that could be brought forward to prove that foreigners possess in Peru every guarantee that can be desired in the following of their trade and the employment of their capital. Contracts entered into with them are scrupulously carried out, and justice is done when a proper claim is presented; they are on this account content with Peru and with its Government. If they ever suffer in person or interests it is not from the fault of the Administration, but because passions, vices, and crimes are common to men and peoples; it is a fatal leprosy which affects the human race spread over the face of the globe.

Between the Government of Peru and that of Her Britannic Majesty there exists a treaty of friendship, commerce, and navigation, in which the rights, guarantees, and protection which the subjects and citizens of both countries are to enjoy when residing in either territory are declared. The ordinary laws of Peru concede to British subjects greater and more extensive rights than are set down in that treaty. They can freely enter Peru, reside where they like, get married, make a will, and dispose of their property as they wish, or, dying intestate, their heirs are protected. They can inherit real or personal property, obtain exclusive privileges, carry on manufactories, or establish any kind of industry, but subject to the same laws.

The Fiscal has gone into the foregoing explanations to satisfy the desire of the Honourable Chargé d'Affaires of Her Britannic Majesty on the one hand. They are favourable to his industrious countrymen who come to live in this country, bringing with them as capital their trades, economy, and work, under the protection of our laws. On the other hand, they are for the benefit of the country itself, and principally because at the time when a law affecting foreign emigration has been passed, emigrants may be aware of the guarantees, rights, liberties, and protection which they may hope for on arriving in Peruvian territory.

The desire of the Peruvian Government to encourage European colonies is testified in the Bill which passed Congress in 1873, when the sum of 40,000 soles, or about £8,000, was voted to bring some schoolmasters to Peru from Europe.

A large number of English artisans have for many years been established in Peru, living there on affectionate terms with the people, connected with the important English commercial companies, amongst which are the Pacific Steam Navigation Company, the Callao Dock Company, the Callao and Lima Railway, the West Coast of America Telegraph Company, and others, besides which many private commercial firms hold large estates in Peru, who employ many Englishmen.

TREATY OF FRIENDSHIP, COMMERCE, AND NAVIGATION BETWEEN GREAT BRITAIN AND PERU.

Celebrated the 10th of April, 1850, as follows:

ARTICLE I.

There shall be perpetual friendship between the Republic of Peru and her Majesty, Queen of the United Kingdom of Great Britain and Ireland, her heirs and successors, and respective citizens.

ARTICLE II.

There shall be reciprocal liberty of Commerce between the territories of the Republic of Peru and the dominions of Her Britannic Majesty. The citizens and subjects of both countries respectively will enjoy full liberty and security to enter with their ships and cargoes in all places, ports, and rivers of the territories of the other, in which is permitted, or will be permitted with other nations. Both may establish themselves, and reside in whatever part of the said territories respectively, hire, and occupy houses and stores that they may require, and trade either by wholesale or retail in all classes of productions, manufactures, and merchandise of legitimate commerce, enjoying the same exemptions and privileges as the citizens and natural subjects, submitting themselves, however, to the same laws, decrees, and established uses to which the citizens and natural subjects are subject. In the same manner the ships of war and mail ships of each country respectively, will have liberty to enter in all ports, rivers, and places of the territories of the other, in which is permitted, or may be permitted to enter ships of war, and mail steamers of other nations; and can anchor, remain and repair in them, subject always to the laws and regulations of the respective country. Coast-wise traffic is not included, which each country reserves for itself respectively, and which they will regulate according to their own peculiar laws.

ARTICLE III.

The two contracting parties agree that in whatever favour, privilege, or exemption of commerce or navigation which may have been ceded, or may in future be conceded to the citizens or subjects of the other States, it will make extension to the citizens or subjects of the other contracting party gratuitously, if the concession in favour of the other State has been gratuitously, or by means of an equivalent compensation, if the concession may have been conditional.

ARTICLE IV.

There will not be imposed other or higher duties on the importation in the Republic of Peru of any article, production, or manufacture of the dominions of Her Britannic Majesty, neither will be imposed other or higher duties on the importations in the dominions of Her Britannic Majesty of any article, production, or manufacture of the Republic of Peru, than those which are paid or will be paid for the same article, production, or manufacture, of any other foreign country, neither will they impose other or higher duties in the territories or dominions of each one of the contracting parties, on the exportation of any article for the territories or dominions of the other, than those which are paid, or will be paid, on the exportation of the same article for any other foreign country. There will not be prohibited the importation of any article, production, or manufacture of the territories of each one of the contracting parties, in the territories of the other, without that the prohibition is extended equally to the importation of the same article, production, or manufacture of any other country, neither will be prohibited the exportation of any article of the territories of each one of the contracting parties to the territories of the other without the prohibition be extended equally to the exportation of the same article, production, or manufacture for the territories of all other nations.

ARTICLE V.

They will not exact other or higher duties on account of tonnage, lights, port, pilotage, and salvage, in cases of damage or shipwreck, or other local charges, in the ports of the Republic of Peru on British ships over 200 tons, than those that are paid in the said ports by Peruvian ships of the same burthen, or in the ports of the territories of Her Britannic Majesty to Peruvian ships of over 200 tons burthen, than those that are paid in the same ports by British ships of like burthen.

ARTICLE VI.

The same duties will be paid for the importation in the Republic of Peru of any article that can be legally imported, if the said importation be made in British ships, as if it be made in Peruvian ships; and the same duties will be paid for the importation in the dominions of Her Britannic Majesty of any article that can be imported legally if the said importation be made in Peruvian ships, as if it be made

in British ships. The same duties will be paid, and the same discounts, premiums, and liberties will be conceded on the exportation to the Peruvian Republic of any article that may be legally exported, if said exportation be made in British ships, as if it be made in Peruvian ships; and the same duties will be paid, and the same discounts, premiums, and privileges will be conceded on the exportations of the dominions of Her Britannic Majesty of any article that may be legally exported, if said exportation be made in Peruvian ships as is made in British ships.

ARTICLE VII.

The merchants, captains of ships, and all citizens or subjects of both countries respectively, will have, in the territories of the other, full liberty to manage for themselves their businesses, or confide to the person they wish to employ as agent, broker, factor, or interpreter, and without that they may be obliged to employ other persons than those that employ the natural born of the country, or to pay to those that they employ greater salary or remuneration than pay in like cases the same natural born subjects. The Peruvian citizens in the dominions of Her Britannic Majesty, and the subjects of Her Britannic Majesty in Peru, will enjoy full liberty, as that which now enjoy, and the same that in future will enjoy the natural born subjects of each country respectively, to buy and sell to whom they wish the effects of legal commerce, and fix the prices which may appear to them, without that can be prejudiced by any privilege granted to other individuals to buy or sell; subjecting themselves, however, to the contributions or general taxes established by law. The citizens and subjects of each one of the contracting parties will enjoy in the territories of the other the most efficacious protection in their persons and properties; may have recourse to the tribunals of justice to reclaim what may be expedient for their rights; and can employ in all their causes lawyers, procurators, or agents of whatever kind they may deem expedient, enjoying in this respect the same rights and prerogatives as the natural born citizens or subjects.

ARTICLE VIII.

In all that has relation with the Council authority of the ports, shipping, discharge of the ships, deposit and security of their cargoes, products, and effects, succession of goods, furniture, by will or of other manner, and free disposition of any property, furniture, by sale, gift, exchange, or by will or of any other mode, as well as by what is done to the administration of justice, the citizens and subjects of each one of the contracting parties will enjoy, in the territories and dominions of the other, the same privileges, freedom, and rights as the citizens and natural subjects, and will not be subject in such cases to pay other or higher duties than those that are paid or will be paid by the respective citizens or natural subjects, subjecting themselves always to the laws and local statutes in force in said territories or dominions. If any citizen or subject of one of the contracting parties die intestate in the dominions or territories of the other, the consul-general, consul, or vice-consul of the nation to which the deceased has belonged, in

benefit of the legal heirs or creditors, and as much as the laws of each country may permit it, can take charge of the goods that the deceased may have left, until there may be named an administrator or executor in conformity to the laws of the country in which the death may have taken place.

ARTICLE IX.

The citizens of the Republic of Peru in the dominions of Her Britannic Majesty, and the subjects of Her Britannic Majesty in the Republic of Peru, will be exempt from all forced military service either on land or sea, and of all loan, exaction, or military requisition, and cannot be obliged to pay, under any pretext, neither other or higher imposts or ordinary contributions than those that are paid or will be paid by the natural citizens or subjects.

ARTICLE X.

Each one of the two contracting parties agrees not to take knowingly into his service, or retain in it, the citizens or subjects of the other that may have deserted from naval or military service, and on the contrary, will expel such from its service whenever required by the other to do so. In case of deserting from ships, the authorities are to give assistance to apprehend and restore them.

ARTICLE XI.

provides for permission of consuls to reside in each country for the protection of commerce.

ARTICLE XII.

provides for the protection of the commerce and subjects in case of war; citizens of each country will be allowed six months for those residing on the coast, and one year for those in the interior, to settle up affairs and accounts. All citizens may remain in the country unmolested; neither the debts or public funds, or the shares in companies are liable to confiscation or embargo.

ARTICLE XIII.

provides for the enjoyment of full liberty as regards religious creeds.

ARTICLE XIV.

In case of shipwreck the goods to be faithfully delivered over to the owner.

Signed in London, April 10, 1850. { PALMERSTON. J. DE OSMA. H. LABOUCHERE.

CHAPTER XIII.

Trade between England and Peru.—Commerical Statistics.

THE PACIFIC STEAM NAVIGATION COMPANY.

THE entire service of mail and passenger steam communication along the coast of Peru is served by an English company known as the Pacific Steam Navigation Company. This company was organised in 1839, and commenced their operations with two steamers, the *Peru* and *Chili*. Although, at first, the promoters suffered loss, it soon recovered, and the company, under skilful management at home and in Peru, has risen by degrees to become one of the largest and best-paying of English steamship companies afloat. The growth of trade between England and Peru is exemplified by the fact that this company has now a fleet of no less than forty steamers, which are employed along the coast of Peru, and with England *viâ* the Straits of Magellan, with a tonnage of 96,844, employing 2,500 hands. The company's head-quarters in Peru are at Callao, where they have extensive engineering works for the repairing of their fleet, a steam-laundry, a bakery, and a butchery with yards for cows and sheep, for provisioning their ships. The company employ at Callao a large staff of no less than 200 English mechanics, who form an important colony, reside in houses erected by the company, and possess their own hospital and theatre.

The coast of Peru is one of the most healthy quarters of the globe, and the large staff ashore, as well as that afloat,

enjoy as perfect health there as in Europe. The company runs steamers weekly from Callao to Panama in connexion with the Royal Mail Steamers leaving Colon twice a month for Southampton, and also with the Pacific Mail Companies' line of steamers *viâ* New York, and the French Packet *viâ* St. Nazaire. The steamers leave Liverpool every alternate Wednesday, calling at Bordeaux on the Saturday, and at Lisbon the Wednesday following, and touching at Rio Janeiro and Monte Video. The steamers of this company bring to England from Peru large quantities of sugar, wool, cotton, and silver ore, besides bark, orchilla, and other valuable produce. They take back to Peru full cargoes of English manufactured goods. The importance of the trade between England and Peru is illustrated by this company's business.

THE AMAZON STEAM NAVIGATION COMPANY.

The company's fleet comprises 25 steamers, from 300 to 1,000 tons. The company commence their service at Para. There are three services monthly to Manáos, the principal city on the Amazon, the distance from Para being 927 nautical miles.

From Manáos there are steamers leaving once or twice a month for Iquitos, which is about 1,150 nautical miles from Manáos.

The following vessels comprise the company's fleet:—

Vessel.	Tonnage.	Nom. H.-P.
Marajo	1,039	240
Belem	681	180
Manáos	681	180
Ycamiaba	414	100
Obidos	414	100
Inca	414	100
João Augusto	240	160
Amajas	240	140
Moju	270	50
Madeira	680	180
Andira	351	100
Ariman	142	95
Jurua	351	100
Mauá	681	150
Icá	681	150
Cametá	681	150
Ituxy	289	130
Pará	680	130
Dom Pedro II.	555	90
Imperatriz Theresa.	775	130
Juruty (screw)	164	60
Santarem (twin screw)	690	150
Macapa ,,	690	150
Princessa Isabel ,,	763	134
Conde d'Eu ,,	689	125

TRADE BETWEEN ENGLAND AND PERU.

SUGAR IMPORTS.

Sugar is now extensively grown in various parts of the Republic, and has become an important industry. In the north, around Truxillo, Chimbote, and Lambayeque, the canes can be cut within six months after planting. The labour employed is chiefly Chinese.

The following have been the importations into England of sugar from Peru, 1870–1886 :—

	Bags.	Tons.	Value £ Sterling.
1870	2,510	251	5,020
1871	43,500	4,350	87,000
1872	65,500	6,550	131,000
1873	159,500	15,950	319,000
1874	237,000	23,700	512,112
1875	500,000	50,000	1,000,000
1876	503,000	55,030	1,390,700
1877	633,700	63,370	1,901,000
1878	565,000	56,500	1,204,648
1879	714,000	71,400	1,370,979
1880	495,000	49,503	1,115,768
1881	433,633	43 363	713,661
1882	431,888	43,188	702,923
1883	344,786	34,478	464,221
1884	265,652	26,565	316,154
1885	448,155	44,815	440,846
1886	329,697	32,969	335,755
Total...	6,172,521	621,982	£12,010,887

Amount of Specie (Silver Coin and Bars, Gold Bars, Dust, &c.) imported into England from Peru at the port of Southampton alone, from 1864 *to* 1886.

	Value £. Sterling.		Value £. Sterling,		Value £. Sterling.
1864	1,121,809	1872	32,804	1880	234,540
1865	1,004,636	1873	290,221	1881	.....
1866	1,122,053	1874	307,571	1882	.....
1867	1,064,731	1875	547,001	1883	.....
1868	664,017	1876	629,115	1884	299,000
1869	222,796	1877	633,000	1885	191,888
1870	384,762	1878	617,000	1886	440,667
1871	263,548	1879	167,293		
	5,848,352		3,224,005		1,166,095

Total amount of specie imported at Southampton alone, from Peru, from 1864 to 1886, £10,238,452.

Importations of Alpaca Wool to England from Peru during the years 1881 *to* 1886.

Year.	Imports.	Sales.	Stock.	Stock including inferiors.	Current Prices. Arequipa.	Current Prices. Tacna.
	pkgs.	pkgs.	pkgs.	pkgs.		
1881	19,613	22,507	fleece 10,872 inferior 1991	12,863	1/3 to 1/5	1/0½ to 1/2½
1882	38,451	40,624	fleece 10,653 infer. 1,080	11,733	1/1½ to 1/3	/11½ to 1/0½
1883	13,838	24,464	fleece 997 inferiors 9	1,006	1/2 to 1/5	/11½ to 1/0½
1884	66,725	53,854	fleece 13,189 inferiors 887	14,076	1/0 to 1/3½	/10 to /11
1885	33,792	33,054	fleece 13,253 inferior 717	13,970	/11½ to 1/1½	/ 9 to /9½
1886	26,437	38,075	fleece 1,615 inferiors 125	1,740	/11 to 1/1	/10 to /10½

GENERAL EXPORTS FROM ENGLAND TO PERU DURING THE YEARS 1881–5.

Article.		Quantity Exported.					Value £ Sterling.				
		1881.	1882.	1883.	1884.	1885.	1881.	1882.	1883.	1884.	1885.
Apparel	value	...	...	...	...	...	8,526	11,907	12,343	13,264	9,055
Armsand ammunition	,,	...	...	...	...	...	808	4,309	4,586	7,785	3,739
Sacks, bags	,,	...	...	...	...	...	21,124	29,732	17,377	16,718	9,051
Caoutchouc	,,	...	...	...	...	...	4,120	4,363	4,193	8,157	2,808
Railway waggons	,,	...	...	...	...	...	946	11,893	9,045	20,315	2,165
Coal	tons	48,190	69,749	66,538	88,999	57,563	24,513	36,498	33,499	46,805	27,320
Cordage and string	cwt.	2,319	1,481	2,292	2,699	1,987	4,596	3,898	5,775	6,056	4,261
Cotton	lb.	30,700	23,700	36,200	41,400	29,300	3,823	2,785	4,749	5,772	3,166
,,	yards	26,237,700	34,860,700	17,248,300	31,888,400	20,033,900	324,784	442,061	223,460	389,694	239,446
,,	value	...	...	...	...	...	30,570	36,096	30,841	48,292	32,087
Earthenware	,,	...	...	...	...	...	3,179	7,429	11,673	17,914	10,614
Hardware	,,	...	...	...	...	...	11,579	19,341	20,268	21,145	12,241
Hats	,,	...	...	...	...	...	1,738	3,074	2,453	5,035	6,212
Implements	,,	...	...	...	...	...	3,959	5,411	5,959	12,169	6,233
Hemp goods	yards	1,236,600	580,300	217,800	418,900	569,100	13,207	6,041	2,294	4,497	4,452
Linens	,,	378,600	359,900	189,100	317,200	232,900	10,621	10,567	5,573	10,283	6,837
Machinery	value	...	...	...	...	...	26,938	62,658	69,568	50,856	43,605

Medicines	value	...	...	...	...	...	3,167	5,770	3,583	8,403	5,668
Metals	tons	3,940	8,106	7,531	11,308	5,254	36,774	84,668	70,611	100,293	51,152
,,	cwt.	736	996	940	1,475	849	2,664	3,978	3,485	4,851	2,723
Paint	value	...	...	...	...	...	5,359	6,772	8,716	11,698	6,120
Sauces	,,	...	...	...	...	...	5,195	7,008	6,385	7,719	3,678
Provisions	,,	...	...	...	...	...	3,300	4,054	5,616	6,502	3,535
Stationery	,,	...	...	...	...	...	4,784	6,072	8,961	7,500	3,405
Woollen	yards	1,054,500	1,240,900	1,301,700	2,424,900	1,886,200	96,688	95,060	93,359	174,794	147,954
,,	value	...	...	...	...	...	1,150	3,583	1,519	5,386	3,562
Various	,,	...	...	...	...	...	155,270	69,639	71,686	68,955	53,957
							809,382	984,667	737,577	1,080,858	705,046

GENERAL IMPORTS TO ENGLAND FROM PERU DURING THE YEARS 1881–5.

Article.		Quantity.					Value £. Sterling.				
		1881.	1882.	1883.	1884.	1885.	1881.	1882.	1883.	1884.	1885.
Chemicals	value	...	...	...	...	...	12,447	8,800	3,415	335	10,635
Copper metal	tons	1,570	1,550	1,334	1,663	666	24,015	21,702	20,382	22,494	7,071
,, regulus ...	,,	116	23	32	...	13	5,740	690	1,148	...	260
,, ore	,,	945	769	291	789	...	60,853	51,629	17,633	46,559	...
Cotton	cwt.	35,749	37,958	37,743	27,230	36,258	129,664	137,531	132,033	92,607	121,495
Cascarilla bark ...	,,	10,439	8,654	2,508	1,950	2,557	163,028	105,225	40,772	23,301	28,258
Raw hides	,,	1,102	2,408	1,383	1,594	1,555	3,599	7,260	4,305	4,700	5,138
Silver ore.....	value	...	...	...	...	. .	29,382	51,058	74,558	48,307	58,174
Fine hides	,,	...	...	...	...	...	1,742	4,563	3,489	1,228	6,065
Sugar	cwt.	642,360	650,736	462,923	374,767	611,881	716,435	702,869	470,819	316,591	442,491
Tin ore.....	tons.	23	121	131	173	189	1,156	5,589	7,098	7,318	7,373
Bar tin	cwt.	717	3,039	648	113	213	3,043	14,077	2,878	465	679
Wool, alpaca, vicuña, and llama ...	lb.	1,775,390	3,176,073	1,405,485	6,772,736	3,764,754	116,161	197,117	78,626	397,278	187,831
Sheep's wool	,,	1,358,157	876,144	1,021,522	4,653,407	2,505,582	64,445	123,675	39,374	181,825	82,572
Other products ...	value	...	...	...	...	...	23,072	45,985	42,997	28,421	30,546
							1,354,782	1,477,770	939,527	1,171,429	988,588

THE FOLLOWING ARE AMONGST THE PRINCIPAL ENGLISH COMPANIES AND MERCHANTS RESIDENT IN PERU.

The Pacific Steam Navigation Co.....	Callao.
Callao and Lima Railroad Co.	,,
Callao Dock Company.....	,,
London Bank of Mexico and South America	,
West Coast of America Telegraph Co.	,,
Arica and Tacna Railroad Co.	Arica.
Messrs. Duncan Fox & Co.....	Paita and Callao.
,, Graham, Rowe, & Co.	Callao.
,, Bates, Stokes, & Co.	,,
,, Isaacs & Co.	,,
,, Raymond, Morrison, & Co....	,,
,, Grace Bros. & Co.	,,
,, Grunning & Co.....	,,
,, E. Haines & Co.....	,,
,, H. Lambert & Co.....	,,
,, Fry & Sons	,,
,, Bailey Bros.....	,,
,, Blacker & Co.....	Payta.
Mr. C. Cox	Salaverry.
Messrs. Hope, Jones, & Co.	,,
Mr. H. Clarke	,,

LIST OF THE PRINCIPAL ENGLISH FIRMS TRADING WITH PERU.

Messrs. Graham, Rowe, & Co....	Merchants	...	Liverpool.
,, Duncan, Fox, & Co....	,,	...	Manchester.
,, Baring Bros.	,,	...	London.
,, C. de Murietta, & Co.	,,	...	,,
,, A. Gibbs, Sons, & Co.	,,	...	,,
,, J. H. Schröeder & Co.	,,	...	,,
,, Kleinwort & Co.	,,	...	,,
,, Bates, Stokes, & Co....	,,	...	Liverpool.
,, F. W. Glover & Co....	,,	...	Manchester.
A. R. Robertson, Esq.	Merchant	...	London.
Messrs. Rosing Bros.	Merchants	...	,,
,, Melcher, Rungs, & Co	,,	...	,,
,, Horstman & Co.	,,	...	,,
,, J. H. Burchard & Co.	,,	...	,,
The Union Bank of London ...	...	...	,,

LIST OF THE PRINCIPAL ENGLISH FIRMS TRADING WITH PERU—*continued.*

The London Bank of Mexico and South America	...	...	London.
Messrs. Fruhling & Goschen...	Merchants	...	,,
,, A. Morison & Co.	,,	...	Liverpool.
,, Warburg & Co.	,,	...	Manchester.
,, Mathison & Beausire...	,,	...	Liverpool.
,, Geo. Curling & Co. ...	,,	...	London.
G. A. Witt, Esq.	Merchant	...	,,
Messrs. Sharps & Wilkins	Merchants	...	,,
,, W. & J. Lockett	,,	...	Liverpool.
,, Geo. Rodger & Co. ...	,,	...	Manchester.
,, Leisler, Bock, & Greig	,,	...	,,
,, S. Albrecht & Co.....	,,	...	,,
,, Fry, Miers, & Co.....	,,	...	,,
,, G. Roskill	,,	...	,,
,, Kessler & Co.	,,	...	,,
,, W. F. Dawson & Co.	,,	...	,,
,, Spicer Bros.	Paper Manufacturers		Alton, Hants.
,, A. King, Brown, & Co.	Merchants	...	London.
,, G. Powell & Co.	,,	...	,,
,, A. Levy & Co.	,,	...	,,
,, David Storer & Sons...	,,	...	,,
,, Haines, Batchelor, & Co.	,,	...	,,
,, Bishop & Lacey.....	,,	...	,,
,, Price Bros.	,,	...	,,
,, Isaac & Samuel.....	,,	...	,,
,, H. Kendall & Sons ...	,,	...	,,
,, A. Lambert & Co. ...	,,	...	,,
,, F. Huth & Co.	,,	...	Liverpool.
Mr. W. H. Fletcher	Merchant	...	,,
,, E. Richter.....	,,	...	,,
Messrs. T. Williams & Co. ...	Merchants	...	,,
,, Brownells & Co.	,,	...	,,
,, Hainesworth, Watson, & Co.	,,	...	,,
,, Wideman, Brocher, & Co.	,,	...	London.
Mr. C. T. Hegan	Merchant	...	,,
Messrs. T. W. & J. Walker ...	Merchants	...	Wolverhampton.
,, Mildred, Goyeneche & Co.	,,	...	London.
,, Goodall & Co.	,,	...	,,
,, T. & H. Littledale & Co.	Produce Brokers	...	Liverpool.
,, Littledale, Ragg & Co.	Wool Brokers	...	,,
A. Guillaume, Esq.	Merchant	...	London.

MINING STATISTICS.[1]

Published by the direction of the School of Mines, Lima.

LIST OF MINING PROPERTIES (OWNED) AS REGISTERED IN THE PADRON DE MINAS, CORRESPONDING TO THE SECOND HALF OF THE YEAR 1886.

General Resumé.

Silver mines	1,171	Sulphur mines	12
Coal mines	70	Silver and zinc mines	4
Copper mines	66	Cinnabar mines	4
Petroleum mines	29	Pyrites mines	1
Silver and gold mines	25	Silver and quicksilver mines	1
Silver and lead mines	25	Gold washing	1
Silver and copper mines	20		
Gold mines	16		
Not specified	13	Total mines	1,458

MINERALS EXPORTED FOR THE YEAR 1885.

Silver ore	4,096,968,25	kil.
Argentiferous lead	455,012,00	,,
Plata Piña, and in bars	7,190,21	,,
Copper	164,038,00	,,
	4,723,208,46	

PORTS OF SHIPMENT.	Kil.	MINERAL DEPOSITS.	Kil.
From Callao and its outports	3,624,693,00	From Ancachs	1,924,618,00
,, Pisco	329,819,06	,, Arequipa	8,152,25
,, Mollendo	182,466,25	,, Cajamarca	454,423,60
,, Salaverry	131,806,55	,, Huancavelica	112,244,39
,, Pacasmayo	454,423,60	,, Ica	203,076,67
		,, Junin	250,032,00
		,, Libertad	131,806,55
		,, Lima	1,464,541,00
		,, Cuzco	174,314,00
Total	4,723,208,46	Total	4,723,208,46

[1] Extracted from "La Guia de Lima," 1887.

WITH DESTINATION TO THE FOLLOWING COUNTRIES.

To Germany	2,750,164,75	kil.
,, England	1,829,057,53	,,
,, France	129,936,00	,,
,, United States	209,00	,,
,, Destination not specified	13,841,18	,,
Total	4,723,208,46	,,

SALT.

Respecting salt, Señor Habich, Director of the School of Mines, says that by pretty exact calculation the workings in the year 1885 amounted to 21,500 metrical tons, of which 8,000 tons were exported to Chili, Ecuador, and Colombia; the other portion has been distributed in the consumption of 2,700,000 inhabitants, at the rate of seven kilogrammes each person, and the rest in the industry of the amalgamation of silver, calculated at 50,000 kilogrammes.

Neither coal nor sulphur has been much worked.

Petroleum is abundant in the provinces of Payta and Tumbes, and is at present worked, but in a reduced quantity. In the year 1885, the Zorritos mines, the property of Señor Piaggio, produced, kerosene, 84,310 gals.; benzine, 3,600 gals.; lubricating oil, 7,200 gals.; dark oil, 72,000 gals., or, say, a total of 167,110 gals. = 670,000 litres.

CUSTOM HOUSE REVENUES.—LIST OF BRITISH CONSULS IN PERU.

CUSTOM HOUSE REVENUES OF THE REPUBLIC FOR THE YEAR 1886 COMPARED WITH THE YEARS OF 1876 AND 1866.

Year.	Callao.	Other Custom Houses.
	$	$
1866	2,876,473,71	1,033,245,54
1876	3,561,037,05	1,580,627,31
1886	3,362,918,03	

Showing that the receipts at the Callao Custom House have now assumed the same proportions, or nearly so, as before the war.

LIST OF BRITISH CONSULS IN PERU, 1887.

Charles Edward Mansfield	Consul-General ...	Lima.
George Wilson	Vice-Consul ...	Callao.
Octavius Stokes.....	Consul ...	,,
Henry W. Isaacson	Vice-Consul ...	Lima.
Alexander Blacker	,, ...	Payta.
George E. Steel.....	Acting-Consul ...	Cerro de Pasco.
Frederic Robillard.....	Vice-Consul ...	Mollendo.
W. Valentin Fry	,, ...	San José.
Alexander Herlley.....	,, ...	Arequipa.
Olive G. Jones	,, ...	Pisco.
Geo. E. Steel	Acting-Consul ...	,,
Fredk. Heaton	Vice-Consul ...	Guanape.

TELEGRAPH LINES WORKING AT THE PRESENT DATE.

Between Payta and Piura	70	kil.
,, Ferreñafe and Lima	959	,,
,, Lima and Callao	13	,,
,, ,, and Chorrillos	15	,,
,, Chincha and Ica	115	,,
,, Camaná and Sama	520	,,
,, Mollendo and Arequipa	203	,,
Under repair :—		
Between Piura and Ferreñafe (extension).....	330	,,
,, Chorrillos and Chincha	210	,,
Total	2,435	,,

The following are the places served by the lines of telegraph, at which there are telegraph stations :—Payta, Piura, Ferreñafe, Lambayeque, Chiclayo, Eten, Pacasmayo, Chocope, Trujillo, Salaverry, Chimbote, Casma, Huarmey, Barranca, Supe, Huacho, Chancay, Lima, Callao, Chincha, Pasco, Ica, Camaná, Quilca, Mollendo, Pacocha, Moquegua, Locumba, Sama and Arequipa. Peru is connected by telegraph with England and all parts of the world :—

POSTAGE BETWEEN ENGLAND AND PERU (INTERNATIONAL).

Letters for each .....per ½ oz.	4d.
Postal-cards	1½d.
Commercial Papers per 2 ozs. 1d., minimum...	2½d.
Newspapers, each .....per 4 ozs.	1d.
Samples, for each (maximum weight) per 2 ozs.	1d.
Printed papers of all kinds .....per 2 ozs.	1d.

POSTAGES (INTERNAL).

Letters, for each fifteen grains, or fraction	10 cents.
Postal-cards	3 ,,
,, ,, reply-paid	6 ,,
Printed matter, books, and illustrated periodicals, 15 grms.	6 ,,
Parcels, for each 50 grains, or fraction	8 ,,
Samples ,, ,, ,,	8 ,,

POSTAGES, LOCAL (IN THE TOWNS).

Letters, for each 15 grammes, or fraction	2 ,,
Postal-cards, each	2 ,,
,, ,, reply-paid	4 ,,
Registration of all correspondence, in addition to the postage	30 ,,

Correspondence not prepaid is charged double postage.

NATIONAL REVENUE AND EXPENDITURE 1887–1888.

RECEIPTS.

	S.	
Customs	5,076,874	
Post-office	167,760	
Direct contribution	2,246,695	
Railways	61,500	
Telegraphs	39,000	
Other receipts	500,008	
		S 8,091,837·00

EXPENDITURE.

Secretary of State.

	S.	
House of Senators	70,420	
Secretary of ,,	31,002	
House of Deputies	132,622	
Secretary of ,,	47,789	
Executive Power	54,000	
Ministry	73,660	
Prefectures	280,872	
Post-office	164,956	
Telegraphs	57,564	
Engineers	26,400	
Police	1,523,954	
Additional	41,676	
Carried forward		S 2,504,415·00

NATIONAL EXPENDITURE—*continued.*

Brought forward		S 2,504,415·00
Ministry of Justice.		
	S.	
Ministry	20,160	
Library and National Archives	6,760	
Universities	53,164	
Worship	150,804	
Justice	526,580	
Penitentiary	37,076	
School of Mines	39,000	
Extraordinary expenditure	9,200	
Public beneficence	1,873	
Additional expenses	98,600	
		S 943,217·00
Treasury.		
	S.	
Ministry	36,120	
Head Tribunal of Accounts	41,160	
Casa de Moneda	21,240	
Casas Fiscales	78,528	
Extraordinary	25,000	
Director - General of Customs and its Dependencies	333,320	
Additional expenses	630,532	
		S 1,165,900·00
Ministry of War.		
Ministry		S 24,900·00
Army.		
Generals	S 37,320·00	
Inspection of Infantry, Cavalry, and National Guard	22,080·00	
Inspection and General Commandant of Artillery	8,040·00	
Infantry regiments	698,088·00	
Class schools	75,936·00	
Cavalry squadrons	201,643·00	
Medical corps	3,360·00	
Artillery	133,179·20	
Powder magazine	6,480·00	
Saluting Batteries of Callao	2,880·00	
War Office expenses	51,109·75	
General expenses of the branch establishments	52,760·00	
Accidental expenses	80,000·00	
Army-clothing establishment	99,400·00	
Military instruments	30,000·00	
		1,502,275·95
Carried forward		S 6,140,707·95

NATIONAL EXPENDITURE—*continued.*

Brought forward		S 6,140,707·95
Ministry of Foreign Affairs.	S.	
Ministry	17,800	
Diplomatic and Consular Service	60,000	
Extraordinary expenses	10,000	
Additional	7,000	
		S 94,800·00
Navy.		
Mayoria de Ordenes	10,174·40	
Section of captains	7,920·00	
Captains of ports	84,612·00	
Expenses for materials	17,118·50	
Steamer *Santa Rosa*	35,873·92	
Expenses for materials	30,000·00	
Fluvial Department of Loreto	9,360·00	
Steamer *Peru*	6,000·00	
		201,058·82
Additional expenses		362,986·00
		S6,799,552·77

SUMMARY.

Receipts	S8,091,837·00
Expenditure	6,799,552·77
Surplus	S1,292,284·23

PERUVIAN MONEY.

There is no gold circulation at the present time, which is in silver, and only one standard coin, called sole, which is divided into cents, or centavos.

	s.	d.	
A sole is worth	3	4	English money.[1]
A peseta ,,	0	8	,, the fifth of a sole.
25 centavo ,,	1	0	,,
1 ,, ,,	0	½	,,

[1] The legal rate of exchange is 4s. in English, 5 francs in French. In May, this year, the sole was quoted in Lima at 2s. 11d. It falls and rises according to the price of silver, and the requirements of the Exchange Market.

POUNDS STERLING IN SOLES AT VARIOUS RATES OF EXCHANGE.

Per Sole.	£1.	£2.	£3.	£4.	£5.	£6.	£7.	£8.	£9.
Pence.	s. c.	s. c.	s. c.	s. c.	s. c.	s. c.	s. c.	s. c.	s. c.
44	5.45	10.91	16.36	21.82	27.27	32.73	38.18	43.64	49.09
43	5.58	11.16	16.74	22.33	27.91	33.49	39.07	44.65	50.23
42	5.71	11.43	17.14	22.86	28.57	34.29	40.00	45.71	51.43
41	5.85	11.71	17.56	23.41	29.27	35.12	40.98	46.83	52.68
40	6.00	12.00	18.00	24.00	30.00	36.00	42.00	48.00	54.00
39	6.15	12.31	18.46	24.61	30.77	36.92	43.07	49.23	55.38
38	6.31	12.63	18.95	25.26	31.58	37.89	44.21	50.53	56.84
37	6.48	12.97	19.45	25.95	32.43	38.92	45.40	51.89	57.38
36	6.66	13.33	20.00	26.66	33.33	40.00	46.66	53.33	60.00
35	6.85	13,71	20.57	27.43	34.29	41.14	48.00	54.86	61.71
34	7.05	14.12	21.18	28.23	35.29	42.35	49.41	56.47	63.53
33½	7.16	14.33	21.49	28.66	35.82	42.99	50.15	57.31	64.47
33	7.27	14.55	21.82	29.09	36.26	43.43	50.91	58.18	65.45
32½	7.38	14.77	22.15	29.54	36.29	44.30	51.69	59.08	66.46
32	7.50	15.00	22.50	30.00	37.50	45.00	52.60	60.00	67.50
31½	7.61	15.22	22.83	30.44	38.05	45.66	53.27	60.88	68.49
31	7.73	15.46	23.19	30.92	38.65	46.38	54.11	61.84	69.57
30½	7.85	15.70	23.55	31.40	39.26	47.10	54.95	62.40	70.25
30	7.97	15.94	23.91	31.88	39.85	47.82	55.79	63.70	71.73
29½	8.08	16.16	24.24	32.32	40.40	48.48	56.56	64.64	72.72
29	8.21	16.42	24.63	32.84	41.05	49.25	57.47	65.68	73.89
28½	8.34	16.68	25.32	33.36	41.70	50.04	58.38	66.72	75.06
28	8.47	16.94	25.41	33.88	42,35	50.82	59.29	67.75	76.23
27½	8.60	17.20	25.80	34.40	43.00	51.60	60.30	68.80	77.40
27	8.74	17.48	26.22	34.96	43.70	52.44	61.18	69.82	78.56
26½	8.87	17.74	26.61	35.48	44.35	53.22	62.07	70.96	79.83
26	9.01	18.02	27.03	36.04	45.05	54.06	63.09	72.08	81.09
25½	9.15	18.30	27.45	36.60	45.75	54.90	64.05	73.02	82.35
25	9.29	18.58	27.87	37.16	46.45	55.74	65.03	74.32	83.61
24	10.00	20.00	30.00	40.00	50.00	60.00	70.00	80.00	90.00

WEIGHTS.

In trade the old measures of Spanish origin are employed, their chief equivalents being :—

1 marco ..... = about ½ lb., or correct English weight, 7·385 ozs.
2 ,, ... ,, ,, 1 lb. ,, ,, ,, ,, 14·770 ,,
1 arroba ..... ,, ,, 25 lb. ,, ,, ,, ,, 25·320 lb.
1 quintal ..... ,, ,, 100 lb. ,, ,, ,, ,, 101·280 ,,

WEIGHTS—*continued.*

1 cajon, or 60 quintals	3 tons of 2,000 lb. each.
1 tonelada	1 ton, or correct English weight, 0·904 ton.
1 vara or yard	33 English inches.
1 pulgado, or inch	$\frac{1}{12}$ of an English inch.
1 cuadra	142·063 yards.
10,000 square varas	2½ acres.
1 league	3 miles, or 3·229 English miles.

LIQUID MEASURE.

1 cuartilla	7·549 gallons.
1 cuarta	1·046 pints.
1 frasco	0·523 gallons.
1 galon	0·836 ,,
1 barril	16·728 ,,
1 pipa	100·370 ,,

CORN MEASURE.

1 fanega	30·197 ,,

APOTHECARIES WEIGHT.

1 grano	0·769 grains.
1 ovala	9·231 ,,
1 escrupúlo	0·923 scruples.
1 dragma	0·923 drachm.
1 onza	0·923 ounce.
1 libra medici	0·760 pound.
1 castellano	72 grains.

KILOMÈTRES AND MILES.

KILOMÈTRES INTO MILES.

Kiloms.	Miles.	Kiloms.	Miles.	Kiloms.	Miles.
1	0·621	12	7·453	50	31.05
2	1·242	13	8·074	60	37·26
3	1·863	14	8·695	70	43·47
4	2·484	15	9·316	80	49·68
5	3·105	16	9·937	90	55·89
6	3·726	17	10·558	100	62·10
7	4·347	18	11·179	200	124·2
8	4·968	19	11·800	300	186·3
9	5·589	20	12·421	400	248·4
10	6·21	30	18·63	500	310·5
11	6·831	40	24·84	1,000	621

MILES INTO KILOMÈTRES.

Miles.	Kiloms.	Miles.	Kiloms.	Miles.	Kiloms.
1	1·609	12	19·31	50	80·47
2	3·219	13	20·92	60	96·56
3	4·828	14	22·53	70	112·65
4	6·437	15	22·15	80	128·75
5	8·047	16	25·76	90	144·84
6	9·660	17	27·37	100	160·93
7	11·27	18	28·98	200	321·86
8	12·87	19	30·59	300	482·79
9	14.48	20	32·20	400	643·72
10	16·09	30	48·28	500	804·66
11	17·70	40	64·37	1,000	1,609·3

KILOGRAMMES INTO ENGLISH WEIGHT.

Grm. kilogs			lb.	oz.	Kilogs		tons	cwt.	qr.	lb.	oz.
1	0	=	0	0·035	1	=	0	0	0	2	3¼
5	0	,,	0	0·176	2	,,	0	0	0	4	6½
10	0	,,	0	0·353	3	,,	0	0	0	6	9¾
20	0	,,	0	0·705	4	,,	0	0	0	8	13
30	0	,,	0	1·058	5	,,	0	0	0	11	0⅛
40	0	,,	0	1·410	6	,,	0	0	0	13	3⅜
50	0	,,	0	1·763	7	,,	0	0	0	15	6 9/16
60	0	,,	0	2·116	8	,,	0	0	0	17	10½
70	0	,,	0	2·469	9	,,	0	0	0	19	13⅝
80	0	,,	0	2·822	10	,,	0	0	0	22	0¾
90	0	,,	0	3·175	11	,,	0	0	0	24	4
100	0	,,	0	3·527	12	,,	0	0	0	26	7
200	0	,,	0	7·05	13	,,	0	0	1	0	11
250	¼	,,	0	8·8	14	,,	0	0	1	2	14
300	0	,,	0	10·5	15	,,	0	0	1	5	1
400	0	,,	0	14·1	15	,,	0	0	1	7	4
500	½	,,	1	1·6	17	,,	0	0	1	9	8
600	0	,,	1	5⅛	18	,,	0	0	1	11	11
700	0	,,	1	8·7	19	,,	0	0	1	13	14
750	¾	,,	1	10·4	20	,,	0	0	1	16	1
800	0	,,	1	12·2	21	,,	0	0	1	18	5
900	0	,,	1	15·75	22	,,	0	0	1	20	8

KILOGRAMMES INTO ENGLISH WEIGHT—*continued.*

Kilogs		tons	cwt.	qr.	lb.	oz.
23	=	0	0	1	22	11
24	,,	0	0	1	24	15
25	,,	0	0	1	27	2
26	,,	0	0	2	1	5
27	,,	0	0	2	3	8
28	,,	0	0	2	5	12
29	,,	0	0	2	7	15
30	,,	0	0	2	10	2
31	,,	0	0	2	12	5
32	,,	0	0	2	14	9
33	,,	0	0	2	16	12
34	,,	0	0	2	18	15
35	,,	0	0	2	21	3
36	,,	0	0	2	23	6
37	,,	0	0	2	25	9
38	,,	0	0	2	27	12
39	,,	0	0	3	1	15
40	,,	0	0	3	4	3
41	,,	0	0	3	6	6
42	,,	0	0	3	8	9
43	,,	0	0	3	10	13
44	,,	0	0	3	13	0
45	,,	0	0	3	15	3
46	,,	0	0	3	17	7
47	,,	0	0	3	19	10
48	,,	0	0	3	21	13
49	,,	0	0	3	24	0
50	,,	0	0	3	26	4
51	,,	0	1	0	0	7
52	,,	0	1	0	2	10
53	,,	0	1	0	4	13
54	,,	0	1	0	7	1
55	,,	0	1	0	9	4
56	,,	0	1	0	11	7
57	,,	0	1	0	13	11
58	,,	0	1	0	15	14
59	,,	0	1	0	18	1
60	,,	0	1	0	20	4
61	,,	0	1	0	22	8
62	,,	0	1	0	24	11
63	,,	0	1	0	26	14
64	,,	0	1	1	1	1
65	,,	0	1	1	3	5
66	,,	0	1	1	5	8
67	,,	0	1	1	7	11
68	,,	0	1	1	9	15
69	,,	0	1	1	12	2
70	,,	0	1	1	14	5

Kilogs		tons	cwt.	qr.	lb.	oz.
71	=	0	1	1	16	8
72	,,	0	1	1	18	12
73	,,	0	1	1	20	15
74	,,	0	1	1	23	2
75	,,	0	1	1	25	5
76	,,	0	1	1	27	9
77	,,	0	1	2	1	12
78	,,	0	1	2	3	15
79	,,	0	1	2	6	3
80	,,	0	1	2	8	6
81	,,	0	1	2	10	9
82	,,	0	1	2	12	12
83	,,	0	1	2	15	0
84	,,	0	1	2	17	3
85	,,	0	1	2	19	6
86	,,	0	1	2	21	9
87	,,	0	1	2	23	13
88	,,	0	1	2	26	0
89	,,	0	1	3	0	3
90	,,	0	1	3	2	7
91	,,	0	1	3	4	10
92	,,	0	1	3	6	13
93	,,	0	1	3	9	0
94	,,	0	1	3	11	4
95	,,	0	1	3	13	7
96	,,	0	1	3	15	10
97	,,	0	1	3	17	13
98	,,	0	1	3	20	1
99	,,	0	1	3	22	4
100	,,	0	1	3	24	7
200	,,	0	3	3	21	0
300	,,	0	5	3	17	0
400	,,	0	7	3	14	0
500	,,	0	9	3	10	0
600	,,	0	11	3	7	0
700	,,	0	13	3	3	0
800	,,	0	15	3	0	0
900	,,	0	17	2	24	0
1,000	,,	0	19	2	21	0
2,000	,,	1	19	1	15	0
3,000	,,	2	19	0	6	0
4,000	,,	3	18	2	26	0
5,000	,,	4	18	1	19	0
6,000	,,	5	18	0	12	0
7,000	,,	6	17	3	4	0
8,000	,,	7	17	1	21	0
9,000	,,	8	17	0	14	0
10,000	,,	9	16	3	6	0

REDUCTION OF ENGLISH INTO PERUVIAN WEIGHT.

Oz.		kilogs.	grms.
1	=	0	28
2	,,	0	57
3	,,	0	85
4	,,	0	113
5	,,	0	142
6	,,	0	170
7	,,	0	198
8	,,	0	227
9	,,	0	255
10	,,	0	284
11	,,	0	312
12	,,	0	340
13	,,	0	369
14	,,	0	397
15	,,	0	425

Lb.		kilogs.	grms.
1	=	0	454
2	,,	0	907
3	,,	1	361
4	,,	1	814
5	,,	2	268
6	,,	2	722
7	,,	3	175
8	,,	3	629
9	,,	4	82
10	,,	4	536
11	,,	4	990
12	,,	5	443
13	,,	5	897
14	,,	6	351
15	,,	6	804
16	,,	7	258
17	,,	7	711
18	,,	8	165
19	,,	8	619
20	,,	9	72
21	,,	9	526
22	,,	9	980
23	,,	10	433
24	,,	10	887
25	,,	11	341
26	,,	11	794
27	,,	12	248

Qrs.		kilogs.	grms.
1	=	12	70
2	,,	25	40
3	,,	38	10

Cwt.		kilogs.
1	=	50·80
2	,,	101·60
3	,,	152·40
4	,,	203·20
5	,,	254·00
6	,,	304·80
7	,,	355·60
8	,,	406·40
9	,,	457·20
10	,,	508·00
11	,,	558·80
12	,,	609·60
13	,,	660·40
14	,,	711·20
15	,,	762·00
16	,,	812·80
17	,,	863·60
18	,,	914·40
19	,,	965·20

Tons		kilogs.
1	=	1,015·00
2	,,	2,032·10
3	,,	3,048·10
4	,,	4,064·20
5	,,	5,080·20
6	,,	6,096·30
7	,,	7,112·30
8	,,	8,128·40
9	,,	9,144·40
10	,,	10,160·50
11	,,	11,176·50
12	,,	12,192·60
13	,,	13,208·60
14	,,	14,224·70
15	,,	15,240·70
16	,,	16,256·80
17	,,	17,272·80
18	,,	18,288·90
19	,,	19,304·90
20	,,	20,321·00

REDUCTION OF INCHES INTO CENTIMÈTRES.

Inches.		Yards.		Centim.	Inches.		Yards.		Centim.
1	or	0	=	2½	19	or	0	=	48¼
2	,,	0	,,	5	20	,,	0	,,	50¾
3	,,	0	,,	7⅔	21	,,	0	,,	53¼
4	,,	0	,,	10	22	,,	0	,,	55¾
4½	,,	⅛	,,	11½	22½	,,	⅛	,,	57
5	,,	0	,,	12⅔	23	,,	0	,,	58½
6	,,	0	,,	15¼	24	,,	0	,,	61
7	,,	0	,,	17¾	25	,,	0	,,	63½
8	,,	0	,,	20⅓	26	,,	0	,,	66
9	,,	¼	,,	23	27	,,	¾	,,	68½
10	,,	0	,,	25½	28	,,	0	,,	71
11	,,	0	,,	28	29	,,	0	,,	73½
12	,,	0	,,	30½	30	,,	0	,,	76
13	,,	0	,,	33	31	,,	0	,,	78¾
13½	,,	⅜	,,	34¼	31½	,,	⅛	,,	80
14	,,	0	,,	35½	32	,,	0	,,	81¼
15	,,	0	,,	38	33	,,	0	,,	83¾
16	,,	0	,,	40½	34	,,	0	,,	86¼
17	,,	0	,,	43	35	,,	0	,,	89
18	,,	½	,,	45¾					

REDUCTION OF YARDS INTO MÈTRES.

Yards.				Mètres.	Cen.	Yards.				Mètres.	Cen.
1	...	=	...	0	91½	23	...	=	...	21	3
2	...	,,	...	1	83	24	...	,,	...	21	95
3	...	,,	...	2	74	25	...	,,	...	22	86
4	...	,,	...	3	66	26	...	,,	...	23	77
5	...	,,	...	4	57	27	...	,,	...	24	69
6	...	,,	...	5	49	28	...	,,	...	25	60
7	...	,,	...	6	40	29	...	,,	...	26	52
8	...	,,	...	7	32	30	...	,,	...	27	43
9	...	,,	...	8	23	31	...	,,	...	28	35
10	...	,,	...	9	14	32	...	,,	...	29	26
11	...	,,	...	10	6	33	...	,,	...	30	17
12	...	,,	...	10	97	34	...	,,	...	31	9
13	...	,,	...	11	89	35	...	,,	...	32	0
14	...	,,	...	12	80	36	...	,,	...	32	92
15	...	,,	...	13	72	37	...	,,	...	33	83
16	...	,,	...	14	63	38	...	,,	...	34	75
17	...	,,	...	15	54	39	...	,,	...	35	66
18	...	,,	...	16	46	40	...	,,	...	36	58
19	...	,,	...	17	37	41	...	,,	...	37	49
20	...	,,	...	18	29	42	...	,,	...	38	40
21	...	,,	...	19	20	43	...	,,	...	39	32
22	...	,,	...	20	12	44	...	,,	...	40	23

REDUCTION OF YARDS INTO MÈTRES—*continued.*

Yards.			Mètres.	Cen.	Yards.			Mètres.	Cen.
45	=		41	15	80	=		73	15
46	,,		42	6	81	,,		74	6
47	,,		42	98	82	,,		74	98
48	,,		43	89	83	,,		75	89
49	,,		44	80	84	,,		76	81
50	,,		45	72	85	,,		77	72
51	,,		46	63	86	,,		78	64
52	,,		47	55	87	,,		79	55
53	,,		48	46	88	,,		80	47
54	,,		49	38	89	,,		81	38
55	,,		50	29	90	,,		82	29
56	,,		51	21	91	,,		83	21
57	,,		52	12	92	,,		84	12
58	,,		53	3	93	,,		85	4
59	,,		53	95	94	,,		85	95
60	,,		54	86	95	,,		86	87
61	,,		55	78	96	,,		87	78
62	,,		56	69	97	,,		88	69
63	,,		57	61	98	,,		89	61
64	,,		58	52	99	,,		90	52
65	,,		59	43	100	,,		91	44
66	,,		60	35	110	,,		100	58
67	,,		61	26	120	,,		109	72
68	,,		62	18	130	,,		118	87
69	,,		63	9	140	,,		128	1
70	,,		64	0	150	,,		137	16
71	,,		64	92	200	,,		182	88
72	,,		65	84	300	,,		274	32
73	,,		66	75	400	,,		365	75
74	,,		67	66	500	,,		457	19
75	,,		68	58	600	,,		549	63
76	,,		69	49	700	,,		640	7
77	,,		70	41	800	,,		731	55
78	,,		71	32	900	,,		822	13
79	,,		72	24	1,000	,,		914	89

REDUCTION OF MÈTRES INTO YARDS.

Centim.			Ins. or Yds.		Centim.			Ins. or Yds.	
5	=		2	0	55	=		21 $\frac{5}{8}$	0 $\frac{5}{8}$
10	,,		4	0 $\frac{1}{8}$	60	,,		23 $\frac{3}{8}$	0 $\frac{3}{8}$
15	,,		5 $\frac{7}{8}$	0 $\frac{5}{8}$	65	,,		25 $\frac{5}{8}$	0 $\frac{3}{4}$
20	,,		7 $\frac{7}{8}$	0 $\frac{3}{4}$	70	,,		27 $\frac{1}{2}$	0 $\frac{3}{4}$
25	,,		9 $\frac{7}{8}$	0 $\frac{7}{8}$	75	,,		29 $\frac{1}{2}$	0 $\frac{7}{8}$
30	,,		11 $\frac{7}{8}$	0 $\frac{7}{8}$	80	,,		31 $\frac{1}{2}$	0 $\frac{7}{8}$
35	,,		13 $\frac{3}{4}$	0 $\frac{7}{8}$	85	,,		33 $\frac{1}{2}$	0 $\frac{7}{8}$
40	,,		15 $\frac{3}{4}$	0 $\frac{7}{8}$	90	,,		35 $\frac{1}{2}$	1
45	,,		17 $\frac{7}{8}$	0 $\frac{1}{2}$	95	,,		37 $\frac{3}{8}$	1
50	,,		19 $\frac{3}{8}$	0 $\frac{1}{2}$					

REDUCTION OF MÈTRES INTO YARDS—*continued.*

Mètres.		Yds.	Eighths.	Mètres.		Yds.	Eighths.
1	... = ...	1	1	47	... = ...	51	3
2	... ,, ...	2	1	48	... ,, ...	52	4
3	... ,, ...	3	2	49	... ,, ...	53	5
4	... ,, ...	4	3	50	... ,, ...	54	5
5	... ,, ...	5	4	51	... ,, ...	55	6
6	... ,, ...	6	4	52	... ,, ...	56	7
7	... ,, ...	7	5	53	... ,, ...	58	0
8	... ,, ...	8	6	54	... ,, ...	59	0
9	... ,, ...	9	7	55	... ,, ...	60	1
10	... ,, ...	11	0	56	... ,, ...	61	2
11	... ,, ...	12	0	57	... ,, ...	62	3
12	... ,, ...	13	1	58	... ,, ...	63	3
13	... ,, ...	14	2	59	... ,, ...	64	4
14	... ,, ...	15	3	60	... ,, ...	65	5
15	... ,, ...	16	3	61	... ,, ...	66	6
16	... ,, ...	17	4	62	... ,, ...	67	6
17	... ,, ...	18	5	63	... ,, ...	68	7
18	... ,, ...	19	5	64	... ,, ...	70	0
19	... ,, ...	20	6	65	... ,, ...	71	1
20	... ,, ...	21	7	66	... ,, ...	72	1
21	... ,, ...	23	0	67	... ,, ...	73	2
22	... ,, ...	24	0	68	... ,, ...	74	3
23	... ,, ...	25	1	69	... ,, ...	75	4
24	... ,, ...	26	2	70	... ,, ...	76	4
25	... ,, ...	27	3	71	... ,, ...	77	5
26	... ,, ...	28	3	72	... ,, ...	78	6
27	... ,, ...	29	4	73	... ,, ...	79	7
28	... ,, ...	30	5	74	... ,, ...	80	7
29	... ,, ...	31	6	75	... ,, ...	82	0
30	... ,, ...	32	6	76	... ,, ...	83	1
31	... ,, ...	33	7	77	... ,, ...	84	2
32	... ,, ...	35	0	78	... ,, ...	85	2
33	... ,, ...	36	1	79	... ,, ...	86	3
34	... ,, ...	37	1	80	... ,, ...	87	4
35	... ,, ...	38	2	81	... ,, ...	88	5
36	... ,, ...	39	3	82	... ,, ...	89	5
37	... ,, ...	40	4	83	... ,, ...	90	6
38	... ,, ...	41	4	84	... ,, ...	91	7
39	... ,, ...	42	5	85	... ,, ...	93	0
40	... ,, ...	43	6	86	... ,, ...	94	0
41	... ,, ...	44	7	87	... ,, ...	95	1
42	... ,, ...	45	7	88	... ,, ...	96	2
43	... ,, ...	47	7	89	... ,, ...	97	3
44	... ,, ...	48	1	90	... ,, ...	98	3
45	... ,, ...	49	2	91	... ,, ...	99	4
46	... ,, ...	50	2	92	... ,, ...	100	5

REDUCTION OF MÈTRES INTO YARDS—*continued.*

Mètres.		Yds.	Eighths.	Mètres.		Yds.	Eighths.
93	=	101	6	230	=	251	6
94	,,	102	6	240	,,	262	4
95	,,	103	7	250	,,	273	4
96	,,	105	0	260	,,	284	3
97	,,	106	1	270	,,	295	3
98	,,	107	1	280	,,	306	2
99	,,	108	2	290	,,	317	2
100	,,	109	3	300	,,	328	0
110	,,	120	2	400	,,	437	3
120	,,	131	2	500	,,	646	6
130	,,	142	2	600	,,	656	1
140	,,	153	1	700	,,	765	4
150	,,	164	1	800	,,	874	7
160	,,	175	0	900	,,	984	2
170	,,	186	0	1,000	,,	1,093	5
180	,,	196	7	2,000	,,	2,187	2
190	,,	207	7	3,000	,,	3,280	7
200	,,	218	6	4,000	,,	4,374	4
210	,,	229	6	5,000	,,	5,468	1
220	,,	240	5	10,000	,,	10,936	2

TARIFF OF PASSAGE FARES FROM ENGLAND TO PERU.

TO THE PACIFIC COAST OF PERU.

The present 3rd class fares to Callao are :—

By the Pacific Steam Navigation Company from Liverpool; departures twice a month *viâ* Straits of Magellan £25 0 0

By the Royal Mail Company's steamers from Southampton; departures twice a month *viâ* Panama, 2nd class £29 15 0

The steamers of the West India and Pacific Steamship Company also leave Liverpool every Saturday taking passengers for Peru *viâ* Panama.

TO THE EASTERN PROVINCES OF PERU.

Third class fare to Para (at the mouth of the Amazon) by Messrs. A. Booth & Co.'s steamers from Liverpool, but less according to number of passengers ... £12 10 0

By the Amazon Steam Navigation Company's steamers from Para to the Upper Amazons to Loreto... By arrangement.

For a sound organised scheme of emigration the Government would no doubt place two or three of their steamers at the disposal of a society.

The long and costly journey *viâ* Straits of Magellan and *viâ* Panama has CHECKED emigration from Europe to Peru,

but as soon as the Panama Canal is opened that drawback will be removed and persons will be able to take passages to Callao as cheap as to Buenos Ayres (£10).

TARIFF OF FREIGHTS AND PASSAGES

Per Royal Mail Company's Steamers from Southampton, leaving that port bi-monthly.

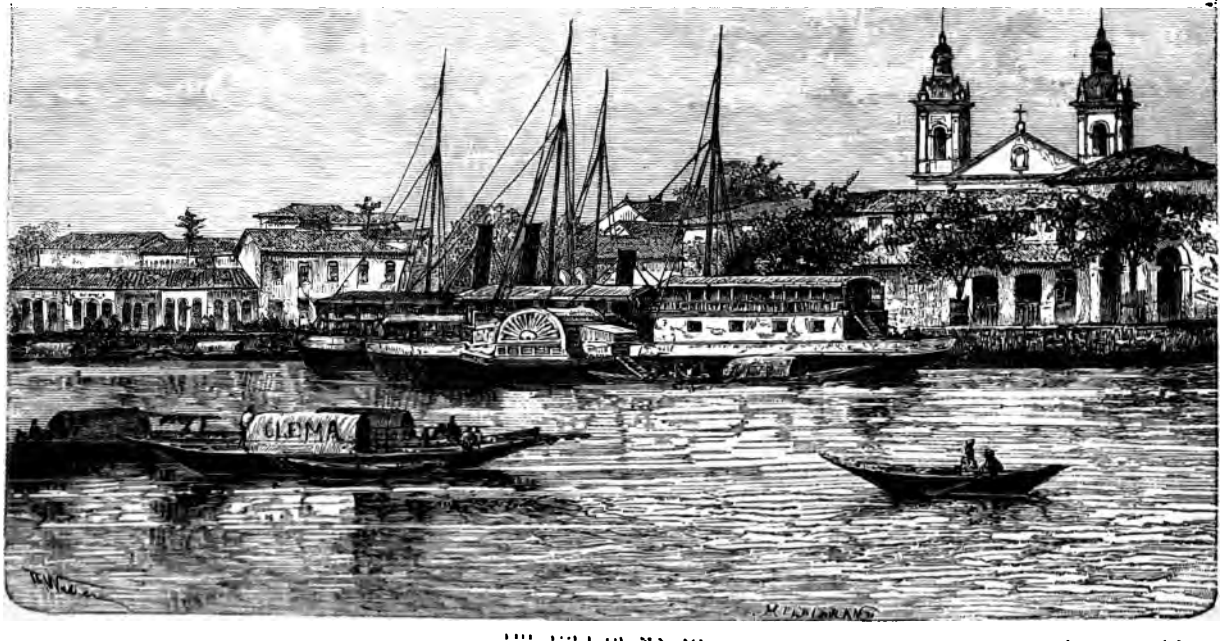
Ports.	From London and Manchester.		From other places.	
	Fine Goods.	Coarse Goods.	Fine Goods.	Coarse Goods.
Callao.....	70/-	65/-	80/-	75/-
Paita, Pimentel, Eten, Pacasmayo, Salaverry, Tumbes, Santa, Chimbote, Samanco, Casma, Huarmey, Supe, Huacho, Chancay, Ancon	90/-	90/-	100/-	100/-
Cerro Azul, Tambo de Morro, Pisco, Quilca, Lomas, Chala Mollendo, Arica, Ilo, Pisagua, Iquique	120/-	120/-	130/-	130/-

Per ton of 40 feet measurement. All with 5 per cent. primage.

	1st Class.	2nd Class.	Servants.
Passages to Callao.....	£63 0 0	£29 15 0	£40 13 4
,, to Paita	56 0 0	27 10 0	36 0 0

RATES OF HOMEWARD FREIGHT.

Cocoa from Callao	£10	0	0	per ton	and 5 per cent.	primage.
Cotton, in pressed bales, Paita.....	6	0	0	,,	and 5 per cent.	,,
Bark from Paita	9	10	0	,,	and 5 per cent.	,,
,, ,, Mollendo	8	10	0	,,	and 5 per cent.	,,
,, ,, Arica	7	0	0	,,	and 5 per cent.	,,
Ore ,, Callao	4	0	0	,,		
Hides, salted or raw	6	0	0	,,		
,, dry	6	0	0	,,		
Wool, pressed.....	8	0	0	,,		
Tobacco in serons	7	0	0	,,		
General merchandise	6	0	0	,,		


BELEM

COST OF VOYAGE UP THE AMAZON.

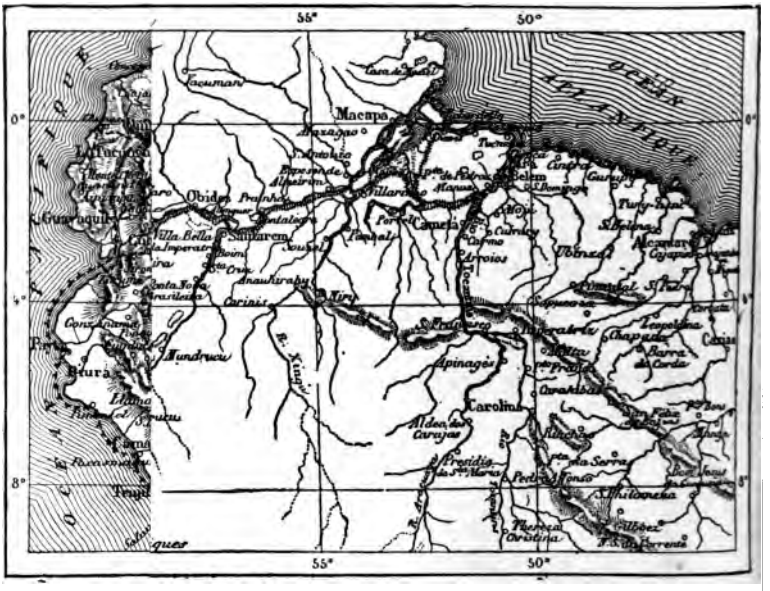
The passage from England to Para from Liverpool is £12 10s. third class, and £25 first class.

The following is Professor Orton's description of a voyage up the Amazon:—"At the Hotel Commerceo, at Para, you pay 10s. a day for first-class accommodation. Steamers leave Para for Mañáos the 2nd, 9th, and 18th of each month. Suppose that on the 18th you board one of the Brazilian steamers for Mañáos, fare fifty-four dols., time six days. In this voyage of 1,000 miles, you will discern the marvellous wealth of tropical vegetation. The principal points of interest are Bréves, the enchanting channel of Tajupurá, the table-hills of Almeirim, the romantic port of Alegre, stately Santarem, picturesque Obidos, and enterprising Serpa. Do not fail to have a row on the River Rio Negro, and to visit the cascade in the forests. Sept. 12 you will embark on the *Icamiaba*, and enjoy another charming voyage of 1,000 miles, fare forty-five dols., time six or eight days. The most important places, on the middle Amazon, are Ega, Foente Boa, and San Paulo. Tabatinga, the termination of the voyage, is the frontier fortress of Brazil. There you exchange steamers, taking the Peruvian steamer *Moroña* or *Pastassa*, which will leave Tabatingo for Yurrimaguas, on the Huallaga, Sept. 21st, fare 70 dols. = £14. The steamer runs only in the daytime, and stops at numerous points, so that you have a fine opportunity of studying the wild exuberance of Nature on the Upper Marañon, where the forest is more magnificent than lower down. The places of chief interest are, Mancallacta, Iquitos, Nanta, and San Regis. At Iquitos, an enterprising village of 2,000 souls, the steamer stops six days. Here are the Government ironworks of Peru, carried on by English mechanics. You will reach Yurrimaguas Oct. 5th.

"From Yurrimaguas you may follow Herndon's track, if you choose, taking canoe up the Huallaga to Tingo Maria, and thence by mule to Lima. But I advise an easier route:—hire a boat and three Indians (twenty dols.) for Balsa Puerto, time five days. Thence foot it four days to

Moyobamba. Moyobamba is a city of nearly 10,000 people, who are busy making hats. You will wish to enjoy the genial climate, and the novelty of this unfrequented spot for at least a week. The price of a mule from Moyobamba to Chachapoyas is eight or ten dols., time six days. To insure a shelter at Chachapoyas, the traveller should bring with him a letter from the Peruvian Minister in London. From Chachapoyas to Leimabamba is a good road, time two days, four dols. fifty cents for beast; sleep at Tingo. From Leimabamba to Balsas, two days, stopping at Huánco; four to five dols. per beast. Thence it is but half-a-day's ride to the terminus of the Pacasmayo Railway. From Pacasmayo a weekly steamer runs to Callao, a two or three days' journey, passing by famous Trujillo and within sight and smell of the guano-bearing Guarapi Islands; fare, twenty-three dols. The best hotel in Lima is the Mauray; for rooms from fifty cents to two dols. fifty cents per day; board and lodging from three to four dols. Steamers leave Callao to San Francisco, 253 dols.; to New York, viâ Panama, 197 to 214 dols. The whole journey does not exceed 800 dols.; time five months."

An occasional steamer leaves Para for San Antonio, on the Madeira, 434 leagues, time nine days. A monthly steamer leaves Mañáos for San Antonio on the 27th; fare, fifty dols.; thence by canoe to Trinidad, 185 leagues, sixty-two days. From Trinidad to Santa Cruz by canoe, 190 leagues; Santa Cruz to Cochabamba by beast, 119 leagues; Cochabamba to La Paz, by beast, 80 leagues; La Paz to Puno, by beast and steamer, fifty leagues; Puno to Mollendo, by railway, 340 miles. A steamer leaves Mañáos for San Isabel on the Rio Negro the first of every month. Steamers for the Pichis and Juruá leave on the 11th and 20th; fare to the terminus, sixty dols. From Moyobamba to Tarapota, by mule, three to five days; fare, five to ten dols.; Tarapota to Chasuta, one day, one dol.; Chasuta by canoe to Yurrimaguas, two days and one night, with five Indians, four dols. each and food, and ten dols. for canoe. In Moyobamba, Chachapoyas, and Cajamarca, the only hotels are restaurants, kept by Chinamen.



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CONCLUSION.

GENERAL CONSIDERATIONS.

FROM the preceding chapters we may draw the following conclusions:—

First. That Peru, by its great variety of vegetable productions and its illimitable resources in the precious metals, stands unsurpassed by any nation.

Second. That it is a country highly favourable for European immigration, as, by reason of its physical position, and the so-called Humboldt current flowing from the Antarctic regions, it enjoys a much lower temperature compared with other countries in the same latitude. The climate generally is a genial one, varying from that of the south of England to that of the south of Italy. On the Andes there are places not to be surpassed in the world for the relief of bronchial and pulmonary complaints.

Third. That it is unique and excels other countries in many rare and choice products—such as india-rubber, Peruvian bark, coca, a drug which has lately been brought into use by medical science; alpaca and vicuña wools, &c. The country contains, from one extremity to the other, a boundless supply of gold, silver, coal, and other minerals.

Fourth. That it produces corn, fruits, and vegetables in abundance; and, with regard to the potato, it is gratifying to find that blight does not attack it, as in other countries.

Fifth. That extensive tracts of land are granted free to all colonists on arrival in Peru, who are secured in their property equally with that of natural-born subjects, and are received in the country with welcome.

A country outside the present flow of emigration, but awaiting the accomplishment of the grand work which Providence has placed in the mind of the immortal genius, M. de Lesseps, to carry out for the world's benefit, Peru dreams a dream, and anticipates her destiny; a dream of welcoming multitudes of an active and industrious race of people; a dream of her uncultivated lands returning abundant harvests, and bleating with numerous herds and flocks, her mountains pouring out their precious treasures which are so bountifully stored in them; and throughout the length and breadth of the land the light of peace and prosperity shining, never to be extinguished.

When we consider that Peru contains 500,000 square miles, or nearly 320 millions of acres, upon which at present there are only two and-a-half millions of people, what a glorious prospect lies before the colonist! Here there is abundant scope for the exercise of both his energies and capital, sufficient to keep millions of people in active employment for many generations.

APPENDIX.

THE GOLD MINES OF PERU.[1]

PRODIGAL Nature, which has heaped upon Peru so many riches, has not been less generous in endowing this privileged country with numerous mines, or washings, of the most precious metal—gold. There is no region in Peru which does not offer some gold deposit; the hillocks which form small chains in the flat region of the coast, the deep valleys of the Sierra, the elevated and rugged Cordillera, the virgin forests of the Montaña; in short, all afford mines or washings of gold. There are, of course, places where the quantity of gold contained in the auriferous earths is altogether too small to pay the expenses of extraction, but there are many places where the mines and washings return large profits.

This wealth of gold is confirmed by the ancient historians in treating of the ransom of the Inca Atahualpa, on which occasion the conquerors were struck with amazement at seeing the enormous quantity of manufactured articles of gold in the country.

Under the Spanish sovereignty,—if we may judge from the numerous surface mines, caves, ruins of houses, mills and quimbaletes for crushing the auriferous ores,—gold mining was very active, but the absence of any data respecting its production is very remarkable. At the present time the working of gold mines in Peru is very much restricted, only being carried on in a very few places, and on a very small scale. It is truly surprising that a region so rich in gold should hardly figure among the countries producing this precious metal. Is it that the gold mines of Peru are exhausted? Assuredly not! since the rivers Huari-huari and Inambari in the provinces of Sandia and Carabaya, the river Marañon in Chuquibamba, Uco, Balzas, the river Tabluchaca at the foot of the town of Pallasca, and many others, are continually bringing down in their sands numerous particles of gold. From whence do these rivers derive the gold? It is unquestionable that they derive it from the cerros[2] and deposits of auriferous earths through which the rivers run.

It may be asked,—What is the cause of this decadence of the gold industry? In my opinion, there are numerous causes to account for this depression. The principal are:—(1) The want of association.

[1] By Señor A. Raimondi, translated from the "Anales de Construcciones civiles y de Minas del Perú," vol vi. Published by the School of Engineers. Lima, 1887.

[2] A hill.

(2) Want of capital to undertake costly works, such, for example, as the construction of aqueducts to carry the necessary water for washing the auriferous earth. (3) Bad administration, in many cases capital being consumed in superfluous works, leaving no means to carry out those that are necessary. (4) Want of technical knowledge.

We must, however, admit that the condition of the mining industry in late years has very greatly improved. With the construction of railroads, the means of transport have been facilitated. The establishment of a School of Mines, with an efficient teaching staff, is gradually extending metallurgical science and the proper method of mining operations. A number of gold mines,—at the present time abandoned, as not paying expenses, on account of the small ley of their ores,—could by the aid of improved machinery and modern methods of working be made to yield rich returns. I will not omit a new stimulus which may favour the gold mining industry in the suggested international coinage, which is causing an alarming depreciation in the value of silver, and consequently a relative increased value of gold. It is necessary, then, that the miners should not lose the opportunity of working the precious metal.

THE DISTRIBUTION OF GOLD IN PERU.

In the coast regions, where the hills are almost exclusively formed of crystalline rocks, gold is found in veins of quartz which have opened a passage in the granite and syenitic formations. In this region the auriferous quartz is almost always accompanied with oxide of iron, hydrated (limonite) or anhydrate (oligist iron compact and micaceous). The proportion of oxide of iron which accompanies the auriferous quartz varies considerably, so that it presents all varieties, from white quartz with small ferruginous spots, to a red rock highly charged with oxide of iron, the latter forming nearly the whole of the auriferous material, quartz being present almost as an accidental occurrence. The quartz in the auriferous ores of the coast varies considerably in its aspect, being found crystallised in prisms, in grains partly crystallised, agglomerated and united with the oxide of iron, and in more or less compact amorphic masses like scoria. In this region the auriferous quartz is often found associated with other minerals, such as a talcose substance of white colour, very soft to the touch, with silky gloss like silver; pieces of carbonate of lime of laminated structure; and limonite of resinous appearance. Native gold is sometimes found on the coast, together with copper ores, in which is observed chalkosiná,[1] covelliná,[2] fillipsita,[3] chalkopyrita,[4] zigueliná,[5] malaquite,[6] atacamita,[7] and crisocola or silicate of copper.

In the Sierra regions, where the sedimentary rocks predominate, not only are there veins of gold in the crystallined earths, but they are present also in the metamorphic rocks, occurring usually between the sedimentary and eruptive rocks. Gold occurs in these veins both in

[1] Prosulphide of copper.
[2] Sulphide of copper.
[3] Sulphide of copper and iron.
[4] Copper pyrites.
[5] Protoxide of copper.
[6] Carbonate of copper.
[7] Oxychloride of copper.

the Marañon is crossed, on the way to Cajamarca and Chachapoyas, is situated the town of Balsas, and close by is the Honda Quebrada, at the entrance to which the sands on the banks of the Marañon contain a fine quality gold.

The Hualcarumi Washing.—The Department of Piura has a gold washing in the Quebrada of Hualcarumi, 3 leagues north of the town of Ayabaca, the capital of the province of the same name. The gold is found in an alluvial earth, which rests on the crystalline and porphyritic rocks. According to Professor Olaechea, who has given a description of this auriferous deposit, the gold is in a state of fine powder, the grains varying to the size of a pea, and by a test that he made by washing a certain quantity of earth, he obtained gold to the amount of 1·87 grms. per metrical ton.

Gold Mine in the District of Frias.—In addition to the gold washing at Hualcarumi, the Department has a gold mine situated between the town of Frias and the hacienda of Yanango, in the Province of Ayabaca. The gold is found in the quartz forming a vein in the syenitic rock. This mine, it appears, has been abandoned on account of its small ley of gold, which, according to samples assayed, does not average one ounce per cajon (60 quintals).

Washing of Gold in the Province of Jaen.—In the northern part of the province of Jaen, belonging to the Departmentof Cajamarca, and almost on the borders of Peru and the Republic of Ecuador, is situated the town of San Ignacio; a gold washing is located about half-a-league from the town. This auriferous deposit is found near the hacienda of Tomaqui, but it cannot be worked on a large scale on account of the scarcity of water. For several years the sub-Prefect of the Province of Jaen, Señor De José Maria Villanueva, worked this washing, and constructed a small reservoir which filled during the night, using the whole of the next day for separating the gold.

Auriferous Sand in the River Chinchipe.—About 2 leagues N.E. of the town of San Ignacio is the river Chinchipe, the source of which is in the Republic of Ecuador. In the bed of this river gold is found, which could be extracted with advantage were it not for the distance from Cajamarca (70 leagues), the want of necessities, and bad roads.

The Gold Mines of Asuncion.—About two leagues S.W. of the town of Asuncion in the province of Cajamarca, and about nine leagues from the latter town, are situated the gold mines of Capan, in a metamorphic sand hill. The gold is found in the quartz with oxide of iron, iron pyrites, copper pyrites, and magnetic iron; and also in an earthy ore composed of oxide of iron and copper ore called paco. The pyrites which I have had occasion to analyse contain from 1 to 2½ oz. of gold per cajon (10·4 grms. to 26 grms. per metrical ton), whilst the paco contains varying amounts up to 4 oz. per cajon (41·6 grms. per metrical ton). The mines are badly worked, the excavations only being made where the ore is good. About one league from the Capan mines is the Cerro Colladar, and in Chirinpata several mines are extensively worked, with large and commodious tunnels, and many wells with veins of paco ore, which alternate with laminated carbonate of lime and pyrites. In the valley

at the foot of this cerro there is to be found, at a place called Sapú, the remains of a machine where the ores of Chirinpata were worked; there is also observed in various places the primitive quimbaletes, or machines, which are still used in certain parts of Peru. The principal mines are Chirinpata, La Colorada, El Chino, &c., and if we may judge by the internal workings, these mines must have yielded a large quantity of gold ore. Unfortunately the ores which remain are very poor; lately, having had occasion to analyse various samples of paco, the result yielded on an average only 12 adarmes (⅜ oz.) of gold per cajon of 60 quintals (3 tons), which corresponds to 6·46 grms. per metrical ton. The carbonate of lime containing specks of pyrites yielded hardly any traces of gold. In the upper part of the cerro a vein of blende with iron has been found.

The Gold Mines of Carachugo.—Almost on the summit of the Cordilleras, between Cajamarca and Yanacancha, there are several deposits of desmontes[1], and some mines which were worked by the ancient Indians, in the interior of which various stone implements have been found, which were used in working the auriferous ore. These mines, now abandoned, are known as the Carachugo, and have been worked in very porous quartz, presenting the appearance of scoria. The surface mines are very large, but badly worked.

Cerro del Toro. Department of La Libertad.—About half a league west of the town of Huamachuco rises the El Toro hill, composed of sandy soil in almost vertical layers, and between these are several layers of bluish red clay which form a vein or manto. In these clayey layers there is found at times a kind of talcose clay having the appearance of ashes, containing an appreciable quantity of gold. This manto, known as El Carmen and El Rosario, runs S.S.W. to N.N.E. between layers of whitish sand, sloping towards the cerro (S.E.E.) at an angle of 80°. The surface of this manto is 1 foot wide, but below it spreads out so that at a certain depth it is more than 2 mètres wide. This manto has been worked for a considerable length of time, and it had, when I visited this place, a run of 124 mètres. About 50 mètres further on, Señor Liberato Jara, commenced a shaft, cutting the manto transversely, and worked over 40 mètres. Don Manuel Lavado continued the work for a further 25 mètres, and lastly, Don Juan Lopez Reyna finished it, having cut the manto at the 3 mètres. The direction of this shaft is from N.W. to S.E. Señor Reyna worked another pit, to which he gave the name of San Francisco de California.

Gold Mines of the Province of Pataz.—The province of Pataz, principally the southern part, is one of the richest in gold in the whole of Peru, and it might almost be said that the towns of Pataz, Parcoy, Soledad, and Tayabamba, stand upon auriferous deposits. In these towns, especially Parcoy and Tayabamba, when it rains heavily, particles of gold can be seen in the earth of those places, which in the locality is called *astillas;* there have already been found nuggets weighing nearly 1 grm.

[1] Desmontes—A poor silver ore which can only be refined by means of quicksilver.

Gold Mines of the Vicinity of Pataz.—In the vicinity of the town of Pataz there exist many surface mines, from which large quantities of gold have been extracted, but the greater part of them are at present abandoned. The gold is found in quartz, which forms numerous veins in the syenitic rocks and dioritic porphyries, their direction being mostly from north to south. Generally the latter are accompanied with a kind of kaolin,[1] occasionally with small veins of talcose clay, known in the locality as *panizo*. The principal hills in the vicinity of Pataz, where gold mines have been found, are :—

The Cerro of San Francisco, situated about half-a-league south-west of the town of Pataz. The principal mine is the San Francisco, which, according to the data given me, is over 240 mètres, and about 100 mètres deep. At the bottom of the mine a tunnel has been opened to carry off the water. The cerro not only contains gold ores, but also veins of galena and pavonado (argentiferous grey copper ore).

The Cerro of Jembon, situated N.N.E. of Pataz, on the road leading to Cajamarquilla, is intersected with auriferous veins. The principal is called La Polvadera, and has a mine of the same name about 10 or 12 cuadras[2] from the town of Pataz. The vein is of quartz, with panizo ; its ores have yielded from 1½ oz. to 50 oz. of gold per cajon (13·88 grms. to 520·83 grms. per metrical ton).

The Cerro of Sarumillo, situated on the side of the river Caruabamba, and about 1 league to the north of Pataz, has a number of veins, which appear to unite at a place called Uquilaya, where a pit has been sunk. The ores of this mine are pacos, and yield some 35 grms. of gold per cajon, or 12·68 grms. per metrical ton. The residue of the refining yields 6 marcs of silver per cajon.

The Gold Mines of Parcoy.—The town of Parcoy, the capital of the province of Pataz, is about 13 leagues from Pataz. In its vicinity there are numerous abandoned gold mines, which lead to the belief that this place must have been in former times a centre of active work.

The auriferous cerros in the vicinity of Parcoy are :—

The Cerro of Mishito, situated N.N.E. of the town. The auriferous mineral is commonly called bronce. This ore is not worked because the ley is said to be small ; it is probable they do not extract all the gold it contains, as it is refined without previous calcination. In the Mishito Cerro, a little gold is found in the paco.

The Cerro of Puyhuancito, situated on the other side of the Quebrada de la Soledad, half-a-league N.N.E. of Parcoy. This cerro contains a considerable quantity of gold, but it is found in a very loose soil, which is subject to continual slips, so that the works have been paralysed by the numerous accidents which have occurred.

The Cerro of Chinchil, N.N.W. of the town, has veins of paco, with gold ; the ore often contains gold visible to the naked eye. The ore is so friable that it is washed in the trough with quicksilver and the sediment ground in a mill. Behind this cerro is another, called

[1] Kaolin—silicate of alumina.
[2] A cuadra is 146 yards.

the *Fuyhuan Grande*, which may be considered as part of the Cerro Chinchil. The Gullinero and the Cerrito Blanco mines are situated here, which have yielded considerable quantities of gold, the discovery of which has been the foundation of Parcoy.

The Tajo Mine.—Almost at the commencement of the Yacuabamba Valley there is a gold mine worked by open cuttings, on which account it is called El Tajo. This mine is worked like a washing, by causing the auriferous earth to descend by means of water upon a strip of champa (a kind of peat) 50 yards long, with the object of retaining the gold. Every fifteen or twenty days the champa is raised to collect it. This mine has yielded a considerable quantity of gold, but the workers are continually in danger of being buried by its falling in, from which cause it had to be prohibited.

Mina Gigante.—Ascending almost on the summit of the Cerro Mishito, the pit or cutting of Huacrachuco is situate; it is over 300 mètres long, and was excavated to drain the rich Gigante Mine, which is situated a little above the place called the Crucero, a point crossed by several veins. This mine, according to documents in the possession of Señor Terrones, has yielded as much as one pound of gold for each basket of 5 arrobas of ore. The Gigante Mine contains gold in pyrites, as in October, 1883, I had occasion to analyse a specimen which contained 9 oz. of gold per cajon (3 oz. per ton).

The Gold Washings of Cajas.—About 2 leagues to the east of the town of Tayabamba, belonging to the province of Pataz, is the river Cajas, the site of the gold washings. About 4 leagues along the right bank of the river there are layers of reddish sand with grains of quartz and layers of very loose ferruginous earth. Gold is found in the latter, principally in the layer of gravel, which is found below, accompanied with some rounded stones of hematite or compact oligist iron, locally known as "matrix del oro," so that the appearance of these stones denotes the presence of gold. In the Cajas washings a nugget was found weighing 5 pounds, and some of 1 to 2 oz. are frequently met with.

On the right bank of the river Cajas, where the gold washings are situated, small streams are frequently met with, which bring down gold in the sand. Amongst these streams there is one worth mentioning, which enters the river Cajas about 3 leagues from Tayabamba, descending from the Pagrasha Cerro, which is of considerable height, and contains many gold mines. The rounded stones which the streams carry down are talcose slate, which leads to the supposition that this cerro is composed of this material.

The Gold Mine near Trujillo.—Recently a gold mine has been discovered about 3 leagues from the port of Salaverry, towards the interior. The gold is found in the quartz, which forms veins in a syenitic rock. The auriferous quartz has a very varied appearance, being more or less compact, porous, and accompanied with a variable quantity of oxide of iron. Occasionally the oxide of iron is so abundant that the ore can be considered a paco.

In the first analysis I made of the ore from this mine, I obtained a ley of gold varying from 1 to 9 oz. per cajon of 60 quintals (10·4 grms. to 93·6 grms. per metrical ton). Lately much richer ores

have been sent me from the same locality, in which gold is found associated with silver and lead in the following proportion :—

Gold	...	...	...	90 grms. per metrical ton.
Silver	...	...	...	900 ,, ,, ,, ,,
Lead	...	...	...	30 per cent.

The Zalpo Mines.—These mines are about 18 leagues from Trujillo, in the province of Otuzco, and contain silver and gold. In the richest mine gold is found in the quartz accompanied with kerargira (chloride of silver), limonite, and oxide of manganese. A sample from this mine has yielded on analysis 27·72 marcs of gold and 394·8 marcs of silver per cajon. Another sample, less rich in gold but richer in silver, yielded 24 marcs of gold and 480 of silver per cajon.

In the Zalpo mines, the gold is not only met with in a native state, but also combined with sulphide of lead and silver. Analysis of a sample from the Carabamba mine showed the presence of sulphide of lead rich in silver and gold, accompanied with copper and iron pyrites and blende, giving a result equal to 8·4 marcs of gold and 345·6 of silver.

Gold Mines of the Guadalupito Hacienda.—On the right bank of the river Santa, about 2 leagues from the town, is situated the hacienda of Guadalupito, in the Viru district of the province of Trujillo.

The syenitic hills contain veins of gold bearing quartz, accompanied occasionally with limonite, calcite, and talc. A sample of quartz with limonite and talc gave on analysis a ley of gold of 10 grms. per metrical ton, about 1 oz. per cajon. Another richer sample of quartz with limonite and calcite yielded 40 grms. of gold per metrical ton, or a little less than 4 oz. per cajon.

DEPARTMENT OF ANCACHS.

The department of Ancachs, without being as rich in gold as the department of La Libertad, has also washings and mines.

Washings of Pallasca.—Close to the town of Pallasca, in the province of this name, flows the river Chuquicara, also called the Tablachaca, which separates the Ancachs department from that of La Libertad. This river contains gold-bearing sands, principally in the part between the Tablachaca bridge and its junction with the river Santa. A portion of the inhabitants of Pallasca devote themselves to the extraction of gold from the bed of this river, and on that account they are called Playeros. The gold of the river Chuquicara or Tablachaca is in very small flakes, so that after washing the sand in troughs to concentrate the gold, they separate the metal by means of quicksilver, filtering the amalgam, which they afterwards mould into small balls. A sample of gold from the Pallasca washings gave the following composition :—

Gold	...	...	...	...	...	0·840 per cent.
Silver	...	...	...	...	...	0·084 ,,
Copper	...	...	...	...	...	0·076 ,,

The gold from the river Chuquicara is derived from the deposits of auriferous earths on the banks of the river and by the small streams,

principally the Chuygoran. It is a known fact that the sand of the river Chuquicara is richer in gold after its confluence with these streams. Several veins of auriferous ferruginous quartz occur in the talcose slate in the vicinity of the town of Pallasca. A specimen of auriferous quartz from the ravine of Chuygoran gave on analysis 95·8 grms. per metrical ton, equal to 9·2 oz. of gold per cajon.

Gold Mines near the district of Uco.—In the most eastern part of the province of Huari, about 15 leagues N.E. of the town, is situated the district of Uco, with very rich mines and washings. These mines are situated in an elevated cerro, known as San Cristobal de Uchasinga, composed of talcose and gneiss slate, N.N.E. of the town of Uco. Gold is found in the several veins of quartz; the principal veins run S.S.E. and N.N.W., declining to N.N.E. at an angle of 75° to 80°. The quartz is occasionally found crystallised, and containing a little pyrites. The vein is accompanied with a layer of clayey earth, commonly called *caliche*. A specimen from this cerro yielded 37·5 grms. of gold, equal to about 3½ oz. per cajon. There is a particular fact to be noted in this vein, that about 12 mètres towards the interior of the cerro, one of the veins disappears, its place being taken by a white feldspathic rock, almost in a state of decomposition, which is locally known as *panizo;* but what is worthy of attention is that with this change, which the miners in the district call *abreria*, the richness of the gold decreases very considerably, the vein becoming almost sterile.

Gold Washings.—In the district of Uco, besides the numerous mines on the hill of San Cristobal of Uchusinga, there are several good washings. They are in the Ninamayhua ravine, on the other side of the cerro of San Cristobal, towards the Marañon. The washings in this ravine, are each known by distinct names, according to the part in which they are located; the principal are:—the Ninamayhua, the Chinchuragra, and the Pucaragra. The auriferous earths are of alluvial origin, being in general of a reddish colour, owing to the presence of a large quantity of oxide of iron, and are formed of débris and rounded stones, such as granite, gneiss, talcose and micaceous slate, quartz, diorite, calcite, and hematite, the latter being found in the lower part of the auriferous deposits, these stones being the true accompaniments of gold. These alluvial earths rest upon a calcareous soil containing ammonites. The Uco washings contain gold in small flakes and grains, but the latter rarely exceed ½ oz. in weight. It is difficult to determine with precision the richness of these washings on account of its being so variable, but the average is about 2 grms. per metrical ton of earth. However, some years ago there was found at one spot over 2½ arrobas (62½ lb.) of gold. The quality of the gold from these washings is of good ley. Analysing a nugget from the Ninamayhua washing, I obtained:—

Gold	0·892
Silver	0·048
Copper	0·060

Gold Mine of Janca.—About 6 leagues from the Culebras ravine, in the province of Santa, is the hacienda of Cusmo; about 3 leagues from Cusmo towards the interior, and about half a league from the

village of Janca, is situated the gold mine of the name. The mine, when I visited it, was only a few mètres deep, and exhibited a narrow vein of auriferous ferruginous quartz, in a slightly micaceous syenite. The veins run from N. to S. almost vertical. About a league from this mine are four other surface mines, which were formerly worked. The auriferous ore is a more or less ferruginous quartz, and the hill a micaceous syenite.

The gold is very argentiferous, as shown by the analyses of three specimens.

(1). One specimen of quartz from the upper part of the first surface mine yielded per metrical ton :—

Gold, 41 grms., equal to about ..... 4 oz. per cajon.
Silver, 104 ,, ,, ,, ... 10 ,, ,,

(2). From the fourth mine :—

Gold, 78 grms., equal to about ..... 7½ oz. per cajon.
Silver, 63 ,, ,, ,, ... 6 ,, ,,

(3). A specimen, containing oxide of iron, and which forms a stain in the middle of the vein, resulted for each metrical ton :—

Gold, 114 grms., equal to about ..... 1·36 marcs per cajon.
Silver, 90 ,, ,, ,, ... 1·07 ,, ,,

Gold Deposit of Chuquia.—There are more than fifty surface mines, now completely abandoned, and many have fallen in. Some of these mines exhibit evidence of having been extensively worked, while others are found only in trial condition.

In these mines the gold was found in small quantity in pyrites, in oxide of iron, and in ferruginous quartz, but distinguishable. Samples of ore gathered in this place vary very considerably in richness. Eight specimens showed an average of 5 to 59 grms. per metrical ton, equal to about ½ to 5 oz. of gold per cajon.

Gold Mines of the Macate District.—This district is in the province of Huaylas, and has numerous silver mines and several auriferous cerros, known by the names of Huanca, Toca, Macon, and Milagro. The auriferous ores of these cerros are very varied, being formed of pyrites, chalkopyrita, limonite, oligist iron, chlorite, cyanosa,[1] and quartz, more or less ferruginous. They are not rich in general, but at times they have a regular ley of gold. A specimen of pyrites with chalkopyrita and cyanosa from the Cerro of Toca gave 35 grms. of gold per metrical ton, a little over 3¼ oz. per cajon. Analyses of six specimens from the Macon Cerro averaged from 20 to 70 grms. of gold per ton, equal to 2 to 6¾ oz. per cajon; five other specimens from the Huanca Cerro gave a result of 5 to 10 grms. of gold per metrical ton, equal to about 1 to 1½ oz. of gold per cajon.

Gold Mines of Quillo.—Near the town of Casma, N.E. to S.W. by W., is the Quillo Quebrada, through which passes the road leading from Casma to Yungay. Near the town of Quillo is a gold mine, in which the mineral lies on a bed of quartz, somewhat ferruginous, with rose-coloured feldspar and chloritic talc or protogine, the mineral

[1] Cyanosa, sulphate of copper.

element occasionally giving place to an irregular rock, with matrices of yellowish and greenish colours. Some specimens of ores of this mine exhibit gold visible to the naked eye, forming small veins in the quartz with oxide of iron. The vein is about 4 inches wide, and the common ore, which does not exhibit gold visible, yielded on analysis 60 grms. of gold per metrical ton, about 5¾ oz. per cajon.

Huancoy Mines.—In the Ambar ravine, near Supé, at a place called Huancoy, about 15 leagues from Huacho, there is an abandoned mine, from which, according to tradition, a considerable quantity of gold has been obtained. This mine appears to have been worked by the Peruvians anterior to the conquest of Peru, as shown by the ancient stone mortars, &c. A specimen of cellular quartz from the vicinity of the mine, indicated a ley of gold equivalent to 16 grms. per metrical ton (1½ oz. per cajon).

Gold Mines of Huarmey.—In the vicinity of the town of Huarmey, in the province of Santa, are several surface mines from which gold has been extracted. It is found in the quartz with oxide of iron, forming veins in the syenitic rock. Although it is said that some specimens have been found exhibiting gold to the naked eye, in general the ore is somewhat poor. None of the specimens that I have had occasion to analyse exceeded a ley of 20 grms. of gold per metrical ton, equal to about 2 oz. per cajon.

Gold Mines Pamplona.—These mines, containing gold and lead, are situated in the province of Cajatambo, near the confluence of the principal branch of the river Barranca with the Gorgor.

Ores in the Department of Ancachs, in which Gold is found associated with other Metals.—The gold in this Department, besides being found in a native state, is also found combined with other metals. In the ore of the Recuay district gold is found in a perceptible quantity in the argentiferous galena of the Santa Rosa mine; in the argentiferous galena with pyrites and bournonita of the Bulona mine; in the pyrites, phillipsita, and bournonita of the Salteada mine; in the stibinite[1] and blende of the Mercedes mine; in the argentiferous blende and pyrites of the San Augustin mine; in the argentiferous jamesonite of the San Bartolomew mine; in the argentiferous blende, galena and bournonita of the Llacchu mine; and in the argirosa[2] with galena and anglesite of the Huerta and Toma mines.

In the ores of the Macato district of the Huaylas province gold is met with, in the argentiferous limonite and in the argentiferous blende of the San Lazaro mine. In the various ores of the Aija district of the province of Huaray gold is found in the proportion of 2 to 3 oz. per cajon, or 20·8 grms. to 31·2 grms. per metrical ton; such as the jamesonite with anglesite,[3] and the argentiferous galena of the Huayhuash Cerro; pyrites with mispickel[4] and covellina of the Huancarama; and panabas with mispickel of the Yanahuanca mine. Among the ores of the province of Cajatambo which contain gold, should be mentioned the native silver with galena of the Rosario mine in Auque-

[1] Sulphide of antimony. [2] Sulphide of silver.
[3] Sulphide of lead. [4] Sulphide of arsenic and iron.

marca, and the galena with native silver, panabas, and chalkopyrite of the Santa Rosa mine in the same place.

It is very probable that many other ores in the Ancachs Department which have not been tested may contain some per-centage of gold.

DEPARTMENT OF HUÁNUCO.

The Huánuco Department has auriferous washings and veins, the principal being that of Chuquibamba.

Chuquibamba Washing.—The town of Chuquibamba belongs to the Singa district, and is situated on the banks of the Marañon, which divides this small town into two parts, which communicate by means of a bridge. There are numerous cataracts in the river Marañon near Chuquibamba, the river running through talcose slate, the predominating rock.

Chuquibamba has been celebrated in former times for its rich gold washings, one place producing in the last century over 8 arrobas. On both banks of the river many large holes have been excavated. While under the Spanish rule, a Curé of the town of Llata, in company with a corregidor, attempted to deviate the current of the Marañon by constructing a solid wall of calicanto wood, the remains of which still exist, with the object of obtaining large quantities of gold from the river bed. Some years ago a North American, finding gold in the sand, formed a similar project, but he died before putting the enterprise into operation.

Señor Villamel undertook extensive works, and extracted a little gold. Finally, about six years ago Señor D. Benito Arana conceived the idea of extracting gold from the bed of the river near the bridge, where the current is slow. With this object he constructed a large dredger to dredge up the gold, which is supposed to accumulate at this point, the river here being deeper and the current slower.

After having incurred heavy expenses for the transport, &c., it was found the dredger could not act, on account of the great stones which were found at the bottom of the river.

At the present time the Chuquibamba washings are almost abandoned ; only a few Indians and people of the district collect gold on a very small scale.

The Rain Washing.—About 4 leagues from Chuquibamba, towards the source of the Marañon and about 1 league from Chavinillo, a town in the province of Dos de Mayo, stands the Rain estancia, on the left bank of the river.

Near this estancia there is an auriferous alluvial earth, which is not worked. A specimen from this place exhibits gold distinctly visible in a kind of conglomerate of limonite débris and talcose slate.

Gold Mines of Boca de Sapo.—In the Tucapa ravine, near the town of Huallanca, in the province of Dos de Mayo, there exists a mine called "Boca de Sapo." The ore is of a yellowish grey colour, formed of quartz, full of cavities like a sponge, and accompanied with oxide of iron. Analyses of a specimen of this ore showed 32 grms. of gold per ton, a little more than 3 oz. per cajon.

Auriferous Earth near Jesus, in the Province of Dos de Mayo.—About a quarter of a league from Jesus, and some 500 yards from the river, there are many hillocks of auriferous earth, which appear to have been formed by the ancient Peruvians, with the object of washing the gold it contained.

Gold Mines in the Vicinity of Huánuco.—In a place called Puelles, not quite one league from the town of Huánuco, and almost in front of the Huayaopampa bridge, there are ancient gold mines, which were much worked. About one league from Huánuco, in the Rinconada of Mamayaco, there are veins of gold formerly worked by Don Juan Estevan Duran.

At Llicua, 1 league from Huánuco, there are extensive veins of auriferous copper ore. Again, about 1 league from Huánuco, in a small ravine, only 2 leagues long, a rich material, formed of talcose slate, crossed with a small vein of quartz of a greasy appearance, entirely concreted with native gold. The specimen in my collection is of rounded form, as if it had been rolled by water; the talcose slate of which it is formed resembles that of the cerros in the small ravine in which it was found. In spite of all the researches made to ascertain its origin, the place from which it is derived is unknown. In Cani and Paucar, about 4 leagues from Huanuco on the road from the Quebrada of Higueras, there are a large number of veins of gold, copper, and silver ores.

Gold Mines in the District of Chinchao Panao.—In the grazing lands of Yanamugui, belonging to Señor Dr. Gregorio Duran, near the Hacienda Callana, in the district of Chinchao, there are found several ancient mines, the ores of which have a ley of gold of 5 oz. per cajon (52 grms. per metrical ton).

On the road from Huánuco to the Montaña of Pozuzo, and between the towns of Chuglla and Muña, is situated the San Domingo Ravine, the sands of which are auriferous. In the ravine of Cutama, the stream, an affluent of the river Chinchao, yields large-sized grains of gold, but in small quantity.

Washings and Veins of Gold in the Ravine of Cayumba.—The river Cayumba is an affluent of the Huallaga. The earths in this ravine are auriferous and of considerable extent. In the lower part, near the mouth of the river, there are good washings, and at the head of the ravine there are rich veins of native gold. There is a tradition that a very rich vein, called "Los tres Alcantarillas," produced a large quantity of gold.

Cerro of San Matia.—In the Montaña of Mayro, near the point of confluence of the rivers Palcazo and Pozuzo, is situated the Cerro de San Matia, respecting which there are traditions as to its being very rich in gold, but at the present time no auriferous ore is found that justifies this fame.

Gold combined with other Minerals.—In the Huánuco Department there are auriferous ores, in which the gold is found combined with different ores. At Verdecocha, near the town of Chaulan, in the district of Higueras, ores are found composed of pyrites, argentiferous panabas, azurite, and malachite, containing 35 grms. of gold per metrical ton (3 to 36 oz. per cajon).

DEPARTMENT OF JUNIN.

The department of Junin is said to be one of the richest in silver ores, but on the other hand it is very poor in gold, this metal being found only in small quantities in the sand of some of the rivers, and in a few veins of quartz and pyrites.

Gold in the Sand of the Rivers.—Almost all the rivers descending the eastern Cordilleras, towards the Montaña, which by their union form the Perené, carry down in their sands a small quantity of gold in minute grains. The auriferous rivers are the Oxabamba, the Paucartambo, the Chanchamayo, the Tulumayo, and the Pangoa; the gold which they bring down is derived from the veins of quartz which cross the great slate and crystalline rock formation of which the Cordillera is constituted, but the quantity of gold in the quartz and river sand is so small that it scarcely repays the expense of extraction.

Gold Mines near Cerro de Pasco.—Two leagues from Cerro de Pasco, at a place called Quínua, several gold mines are found in a neighbouring cerro, and in those of the Chiquirin and the Huamanranca; but the principal mines are found in the Chuquitambo. This elevated cerro is composed of metamorphic sand, the auriferous ore being cubical pyrites, accompanied with a copper ore, containing green stains of carbonate of copper. These pyrites are also found in the argillaceous slate, observed in the same cerro, and have been worked for many years. Its richness in gold is from 3 to 5 oz. per cajon (31 to 52 grms. per metrical ton).

The Gold Mines of Mosca.—In the high hills of Chaucayan, near the small town of Mosca, in the district of Huariaca, province of Pasco, some veins of auriferous quartz are found in a talcose slate formation. The gold of these mines contains silver, which makes its ley a little low.

Gold Mines of Paucamarca.—In the district of Huasahuasi, which forms part of the province of Tarma, the Paucamarca mine is located, with ores of auriferous quartz and earthy limonite.

Gold Mine of Morococha.—Near the mineral hacienda of Morococha, in the Yauli district, province of Tarma, there is a cerro called Nuevo Potosi; at its foot, in a metamorphic sand extending to the banks of the lake, there is a gold mine in a vein of quartz and pyrites. In the last century this mine was worked, as also many others in the neighbourhood, which existed at the beginning of the present century. Situated about a quarter of a league from Morococha, there is a factory for refining the auriferous ores.

Gold in the Argentiferous Ores of the Yauli District.—Native gold is not only found in the various mines in the Yauli district, but also in a more or less quantity in some of the silver mines, viz., the Florencio, the Maria, the Esmeralda, the Union, and the Volcan, the latter being the richest in gold. It is a remarkable fact that gold frequently occurs in argentiferous ores in the Yauli district accompanied with rhodonite.

DEPARTMENT OF LIMA.

Gold Mines in the Lurin Ravine in the vicinity of Lima and in Ancon.—Gold is found in a very small quantity in the chain of hills skirting the coast of Peru at a very short distance from the sea. It is commonly found in quartz, which forms veins in the syenitic and granitic cerros; on the coast of the Department of Lima there are mines and indications of its presence in almost all the ravines.

In the Mala ravine indications of gold are found near Calango. In the Lurin ravine there are gold mines near Manchay and Sieneguilla. In the vicinity of Lima there are mines which have been worked; there is a surface mine in the cerro near Las Caleras, another called Las Ramas, and some indications behind the Cerro of Amancaes. In the Cerro San Cristoval, near the town, I collected specimens which on analysis revealed the presence of gold. In the Ancon ravine there are gold ores of low ley, in quartz with oxide of iron and green stains of carbonate and silicate of copper.

Gold Mines in the Cerro Sanú.—Four leagues from the town of Huacho is the celebrated Cerro Sanú, in which some veins of auriferous quartz were discovered in 1851; this caused so much enthusiasm in Lima, that thousands of persons proceeded to this new California, believing that they would collect gold in handsfull. If it is true that this cerro contains gold, it is found in small quantity, and not easy to obtain on account of the expense of extraction and refining; so that the would-be miners, after passing two or three days of great privation, returned with their tools and barrows without being able to fill the sacks they had brought with the coveted gold. This disappointment caused this celebrated cerro to be forgotten, and in a short time the mines were completely abandoned. Putting aside the exaggerated ideas formed by those who have no knowledge of what a mine is, and of the manner in which the gold occurs in nature, the Sanú Cerro really contains gold, but it is found distributed in veins of irregular form, quartz being found at times which contains particles of gold visible to the eye, a sample of which I took from the Santa Catalina mine. In some parts of the same vein the quartz is almost wholly sterile, so that it is very difficult to ascertain the true richness of the ore. To form some idea of its richness, I analysed a collection of specimens, and obtained an average ley of 32 grms. per metrical ton, equivalent to about 3 oz. of gold per cajon.

Presence of Gold in Piedras Gordas.—In a place called Piedras Gordas, on the road from Lima to Ancon, there is a cerro where some trial mines have been made, from which specimens of ferruginous quartz, with stains of silicate of copper, and vestiges of gold, have been obtained. A specimen composed, for the most part, of quartz, with cavities giving it the appearance of scoria, and known in the country as "quijo podrido," produced on analysis very distinct vestiges of gold.

Gold Mine of Ccorimina.—This mine is located in the district Atavillos Altos, in the province of Canta. Its ores are pacos, com-

posed of a metamorphic sand, with scoriaceous ferruginous quartz, containing silver and gold. An average sample gave on analysis a ley of silver equal to six marcs per cajon, and a ley of gold equivalent to 15 grms. per metrical ton (about 1½ oz. per cajon).

Gold Mines of Huayo.—In the Huamantanga district, in the province of Canta, there is a place called Huayo, where there are several mines, formerly worked, but now abandoned. Three samples of ore from these mines tested a short time ago produced the following result:—(1) A sample from the Nuestra Señora del Carmen mine, composed of a reddish yellow, earthy limonite, intermixed with quartz. Ley of gold equivalent to 20 grms. per metrical ton (a little less than 2 oz. per cajon). (2) Another sample from the same mine, composed of crystallised quartz with limonite. The latter, separated from the large quartz crystals, gave the same ley of gold as the former. (3) From the mine of Señor de S. José de Huarmi-runay, formed of pieces of scoriaceous quartz, accompanied with a yellowish red, earthy limonite, gave a ley of gold of 9 grms. per metrical ton (about 14 oz. per cajon).

Gold Mines of the Hacienda Carreteria.—There are several surface mines situated in the hacienda in the district of Pativilca, province of Chancay, some of which have been considerably worked, but are now completely abandoned. Gold is found in the quartz, possessing a greasy appearance, owing to the presence of talc. The quartz has small cavities containing oxide of iron and of manganese. A sample analysed some few months ago contained 10 grms. of gold per metrical ton (a little less than 1 oz. per cajon).

DEPARTMENT OF ICA.

Gold Mines of the vicinity of Ica.—About three leagues from the town of Ica, several gold mines are met with, from which some specimens were obtained and sent to me five years ago. These specimens showed minute particles of gold visible. The ores are somewhat varied, being found principally combined with oligist iron, with a little horneblende of radiated structure and small green stains of silicate of copper. Others are formed of a complicated mixture, with a little limonite. This ore is interesting from a geological point of view, on account of the association of oligist iron with gold and anfibol, which explains how gold is found in deposits of coloured earth, arising from the decomposition of the rocks containing hematite.

Gold associated with Copper Ores.—In the vicinity of Ica there exist many copper mines, viz., the Canza, the Tingue, and the Yauca, which produce very variable kinds of ores, comprising—cuprita (protoxide of copper), chalcosina (prosulphide of copper), covellina (sulphide of copper), chalcopirita (sulphide of copper and iron), filipsita (sulphide of copper and iron accompanied with carbonate of lime), atacamite (oxychloride of copper), malachita (carbonate of copper), azurita (sulphide of copper and iron), cuprocalcita (carbonate of protoxide of copper and lime), crisocola (silicate of copper), limonite (peroxide of iron hydrated), &c. These ores are frequently accompanied with pyrites, quartz, calcite, yeso, &c., but seldom with native ore. Native

ore is found in sandy ores in an irregular manner, the ore appearing only now and then, so that some portions of the copperous ores extracted are entirely sterile of gold.

The Mineral Cerro of Cinco Cruces.—Another instance of the presence of gold, in an accidental manner, in copper ores, is seen in the mineral cerro of Cinco Cruces, situated in the province of Chincha, about eight leagues from Pasco. The ores of this cerro more or less resemble those of Canza and Tingue; occasionally some appear containing native gold, and visible to the naked eye. A fine sample from the Juanita mine in my collection presents the native ore in a very thick limonite, showing chalcosina, accompanied with crystallised atacamita in small prisms, and quartz. Gold is present at the junction of the chalcolite and quartz, forming, as it were, a boundary line between the ores. As I have said before, the presence of gold in these ores is not constant, many samples from the Juanita mine, analysed, did not show any trace of gold; in others it occurred in some quantity.

Gold Mines of Nazca.—Near the town of Nazca there is an auriferous cerro, known as the Cerro Blanco. Gold is found, but not visible to the naked eye, in quartz with oxide of iron. The richness of gold in this ore varies considerably. A collection of various samples averaged 22 grms. of gold per metrical ton (about 2 oz. per cajon). The Professor of Mineralogy in the Peruvian School of Mines recently procured several specimens of the auriferous ores from Nazca and its vicinity.

The specimens obtained from the principal shaft of Cerro Blanco, which is 300 mètres long, were:—

1st. Ferruginous quartz with limonite. This specimen appeared to be formed of some angular stones united by a kind of silicious cement.

2nd and 3rd. A conglomerate of small quartz, more or less ferruginous, with small quartz crystals.

4th. A mixture of quartz, oligist iron and limonite, with small scales of talc.

5th. Oligist iron with quartz and limonite.

6th. A conglomerate composed of angular quartz, coloured exteriorly by oxide of iron.

An analysis of these specimens mixed together exhibited a ley of gold of 10 grms. per metrical ton, a little less than 1 oz. of gold per cajon. This result is almost identical to that obtained a few months previously from the analysis of a collection of ores from the same cerro, sent me by Mr. Elster. However, the ore being scattered in a very irregular way in the quartz veins, it is probable that richer specimens may be obtained. It is certain that the Cerro Blanco veins ought to give a considerable proportion of gold considering the shaft is 300 mètres long, and is extensively worked, together with other secondary ones. Professor Olaechea says there is a tradition that until a recent period an Indian by himself extracted every day from one of these mines an ounce of gold; the mine from which this quantity of gold was obtained is unknown. The specimen of auriferous ore brought by Professor Olaechea from a cerro situated at three leagues south of Nazca, is formed of quartz with oxide of iron and silicate of copper of bluish green colour.

Having examined this specimen with a glass, I was enabled to discover in the silicate of copper some small particles of gold; and an analysis of a portion of the specimen resulted in obtaining a ley of gold equal to 260 grms. per metrical ton, or nearly 25 oz. of gold per cajon. This specimen, compared with the preceding result, is very rich in gold, and it is very probable that the tradition refers to this cerro and not to the Cerro Blanco, as it would only be necessary to refine one load of mineral, which can be easily done in a day, to obtain over an ounce of gold. This deposit is at present worked by the Indians. The specimen brought by Professor Olaechea from the vicinity of the Chillo Hacienda is formed of white quartz with small cavities and coloured exteriorly by oxide of iron. This specimen yielded on analysis only traces of gold, but as the analysis had been made from a single sample, it is possible it was almost sterile; a larger quantity would probably give a larger amount. There are auriferous deposits, but little known, near the hacienda of S. Geronimo, at a short distance of the town of Santa Lucia.

DEPARTMENT OF HUANCAVELICA.

In the Department of Huancavelica, the number of places where gold is found is very few. The following are those in which the presence of gold has been noted.

Cerro de Potocche.—The Cerro de Potocche, called by some Potocchi, is situated near the town of Huancavelica, and has silver, gold, and copper mines. A specimen taken from Los Santos Inocentes mine, composed of paco with a little azurite and malachite, gave on analysis a ley of silver equal to 48 marcs of silver per cajon, and 3 oz. of gold (31·24 grms. per metrical ton).

Julcani Mine.—About 8 leagues from the town of Huancavelica, in the direction of the town of Lircay, is situated the Cerro of Julcani, where there are hundreds of surface mines, many of them being worked by open cuttings in a N.N.W. to S.S.E. direction. The metallic ore forms many small veins, or rather small mantos, which alternate with vertical capas of a dioritic rock, which appears almost stratified. The Julcani mine contains silver ores; but in the central and most elevated portion of the cerro there are gold mines known as De Corihuacta. The gold is found in a porous quartz with stains of oxide of iron, the metal being visible.

The Lircay Mines.—About 1½ league N.E. of Lircay, a town belonging to the province of Angaraes, some mines are found, known as the Viscachas, and also as the Lircay mines, on account of their proximity to the town. These are silver mines, the gold mines are found in the elevated cerro.

Gold Mines of Coris.—In the upper part of the town of Coris, belonging to the province of Tayacaja and near the lake Pumacocha, some gold mines exist, from which very rich specimens have been obtained. A specimen given me by Señor De Felician Urbino presents native gold in an arborescent form and as small threads upon a ferruginous quartz.

DEPARTMENT OF AYACUCHO.

This Department has many gold mines, which were at the commencement of the present century being worked. There are 41 mines of this metal, viz.: 5 in the province of Lucanas, 18 in Parinacochas, 4 in Cangallo, and 14 in Huanta, but at the present time they are almost all abandoned, and no data whatever exists denoting precisely where these mines are located. The better known are those near the town of Chaypi, and in the Cerro of Luicho.

Gold Mines of Chaypi.—In the vicinity of the town of Chaypi, belonging to the district of Pullo, Province of Parinacochas, are found the cerros of Pullo, Chaypi, and Tocota, which have many gold-mines, now almost all abandoned. The gold is found in the quartz, which forms numerous veins in the granitic and syenitic rocks, of which almost all the cerros of that region are composed. The State engineer, Señor Babinski, who visited the place two years ago, says that the veins that he had occasion to examine did not contan gold visible, but yielded from 3 to 5 oz. of gold per cajon (31·34 grms. to 52 grms. per metrical ton); and he believes that among the numerous mines in that locality there may be some that are richer which could be worked with advantage. According to local tradition, there existed in former time over 30 mines, among which the richest were the Muchadero and S. Luis mines, which were worked for over 80 years; the first is about five leagues south of Chaypi, the latter a little distance from this town. About three leagues from Chaypi, towards Pullo, is the Ancocola mine, now completely abandoned, which yielded in former times very rich ores; it is stated that on one occasion from a single basket containing 6 arrobas (150 lb.) of ore, 90 oz. of gold were extracted. Unfortunately the enemy most to be feared in all mines—water—appeared, hindering the working and causing the mines to be abandoned. About two leagues north of Chaypi is the Lambramani mine, which is abandoned on account of being flooded; and about the same distance to the south is the Yamcama mine and the washing of Pisacaya. The Salinas mine, near Tocota, has a vein one mètre wide, but is not worked for want of air. In the vicinity of Tocota there are many other abandoned mines, viz., Mollehuaca, Tocota Grande, S. Andres Grande, S. Andres Chico, El Diablo, El Triunfo, Los Torrecillas, Santa Rosa, La Cupitana, El Cobrizo, &c. This region appears to be very auriferous; when it rains, the water running through the ravine near Chaypi, grains and even small nuggets of gold are seen in the sand and stones. At the time Señor Babinski visited this place a miner named Buenaventura Rosellini was working some mines on a small scale, grinding and amalgamating the ore by means of the quimbalete, and selling the gold extracted to the Chala merchants. It is to be hoped, however, that some day a company will be formed to work these mines on an extensive scale, as the positive existence of gold, the agreeable climate, and the easy methods

of communication which exist with the port of Chala, are favourable conditions for the organisation of a mining company.

The Gold Mines of Otoca.—Near the source of the river Ingenio, which waters a part of the Department of Ica, and in territory belonging to the province of Lucanas, are situated the towns of Otoca and Chavincha, in the vicinity of which are many gold mines, now abandoned. These mines, discovered between 1670 and 1673, produced large quantities of this metal; the fifth part, paid to the King of Spain, was equal to 80,000 dollars annually.

The Gold Mines of the Cerro of Luicho.—About two leagues N.W. of Panza, the ancient capital of the province of Parinacochas, lies the auriferous Cerro of Luicho. In geological structure this cerro is a more or less metamorphic sand, like that of the Huallura deposit, only in the latter the layers of sand are almost vertical, while those in the Cerro of Luicho are almost horizontal. This formation is 800 mètres thick, the summit of the cerro is 3,400 mètres above the level of the sea, and the lower part 2,600 mètres. In this cerro there are many mines which were formerly worked, the principal are (1) La Descubridora, (2) El Choclon, (3) San Agustin, (4) La Piedra Lipe, (5) Santa Barbara, (6) Labor Negro, (7) Boca de Sarate, (8) Copacabana, (9) Tajo de Velido, (10) Boca de Acuña, (11) Tunas-pata. The terrible earthquake in the month of August, 1868, destroyed a greater part of the galleries, so that it is now impossible to reach the walls to examine the nature of the ore, in order to ascertain if it is as rich as Indians describe it. Señor Babinski did not find the ore in the veins still visible as rich as it is reported to be. However, with the help of a microscope, he discovered some specks of gold, which proves that the mines are not completely exhausted. In the Cerro of Luicho, besides these veins there is also an auriferous alluvial. This earth is composed of sand, pebbles, gravel, clays, and very large rounded stones, resting upon the rocks from which it derives its origin. According to the miners of the district, gold is found disseminated in this earth in the form of grains, flakes, and at times nuggets; but Señor Babinski says that, after a careful examination, he had not been able to find either grains or nuggets, but only very thin flakes, and its separation by the puruna would cause considerable difficulty. He also examined the residue, and only met with very slight specks of gold. In the year 1876, a company was formed to work the gold from the alluvial earth, but it was found that the necessary water was very scarce, consequently it was decided to construct an aqueduct to bring a supply from another place. The execution of this work was entrusted to Señor Mabila, who in a short time succeeded in bringing water from a place called Ispanu, situated about 6 leagues off, running in the aqueduct all the water issuing from the hill. This aqueduct, although it is not a perfect construction, fulfils the object for which it is used. After allowing for all sources of loss, there is received at Luicho one cubic foot, or 27 litres, of water per second, a sufficient quantity to wash the soil. The Society sent for a practical miner from California, Señor D. Carlos Hern, who constructed a machine to wash the soil on a large scale. According to data

obtained on the spot by Señor Babinski, the owners calculate to extract 4 adarmes, or ¼ oz. for each 6 arrobas of earth, which corresponds to about 94 grms. of gold per metrical ton; but, according to the analysis of several samples he obtained, the richness in gold may be calculated at 10 grms. per metrical ton, about 1 oz. of gold per cajon. Notwithstanding the yield of gold, the sufficient water supply, and the place enjoying a very agreeable climate, the company broke up its works without assigning any cause for doing so, consquently the Luicho remains almost abandoned.

Gold and Silver Mines of Maran.—About three leagues south of the town of Panza, lies the village of Maran, and on the other side of the river Lampa there is an abandoned gold and silver mine. The mine is called the Esperanza, and it is situated in a deep hole about 15 mètres above the river. Señor Babinski, who visited this place in 1882, had to make use of ropes and ladders to reach the top of the mine. He says, "the vein is almost perpendicular to the river, and runs from east to west, and has a vein 10 centimètres wide on top, which appears to increase in thickness below. The walls of this vein are porphyritic, and the gangue or matrix is composed of sulphate of baryta and quartz. The mineral is a grey copper ore, which on analysis yielded 12 mares of silver and 6 oz. of gold per cajon. It contains also a high percentage of copper. This mine was worked prior to 1868, but was abandoned on account of the difficulty of extracting the ore. In the vicinity of this mine there are various other surface mines of very little importance, the working of which is very difficult, from being located in almost inaccessible places."

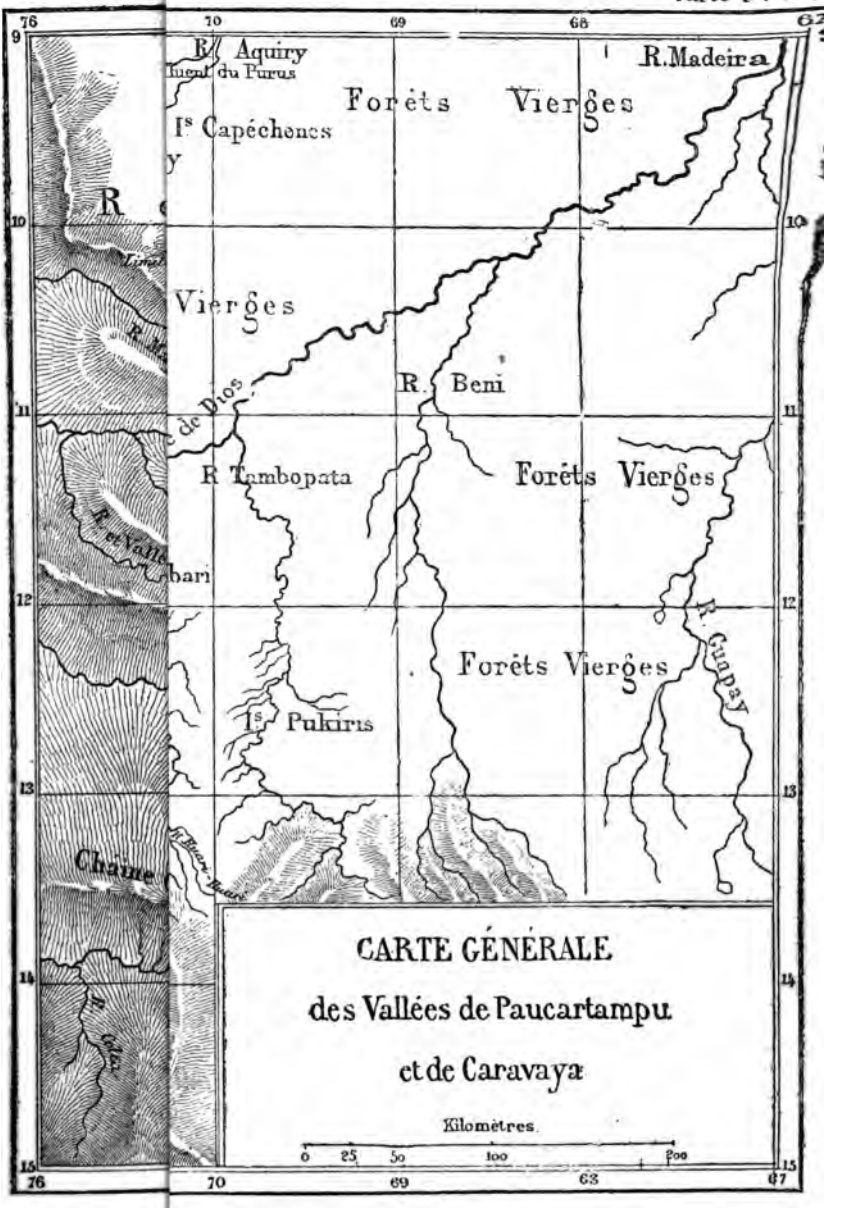
Gold Washings of the Montaña of Huanta.—In various places in the Montaña of Huanta, and in the valley of Simariba and Acon, gold washings are met with, but the superstitious ideas of the inhabitants impede the working of them, as they believe that if the gold is extracted, all their plots of sown land will not yield, and consequently they would be reduced to starvation.

DEPARTMENT OF CUZCO.

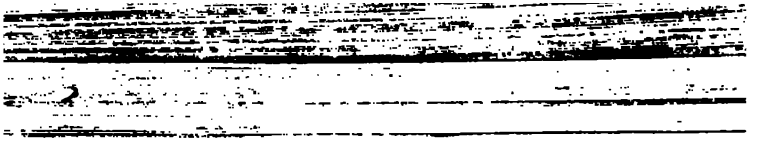
In the extensive department of Cuzco the province of Paucartambo is very rich in gold. There is no doubt the ancient Peruvians extracted a considerable quantity from this district.

The part of the province of Paucartambo containing the most gold is the basin of the river Mapacho, from its source near the town of Ocongate to the town of Paucartambo, the capital of the province. The predominating rock in this region is slate, alternating from talcose to micaceous slate, and in some places to a very argillaceous slate, which imperceptibly passes to hard talcose clays, which rest upon the former. Gold is found almost always in the quartz, which varies very much in its appearance, being more or less white and compact, or more or less porous and stained with limonite. This quartz forms many little veins in the slate, which are at times very rich in gold, but are generally not very thick.

Commencing at the source of the river Mapacho, which is also known


R. Aquiry
Ingal du Purus
R. Madeira
Forêts Vierges
Is Capéchenes
Vierges
R. Beni
R Tambopata
Forêts Vierges
Is Pukiris
R. Guapay
Chaine
CARTE GÉNÉRALE
des Vallées de Paucartampu
et de Caravaya
Kilomètres
0 25 50 100 200
76 70 69 68 67

Face page 2[1]



as the Ocongate or Paucartambo, according to the districts through which it flows, the following mines are met with :—

Gold Mines of Huiscapata.—The mine of this name is situated on the right margin of the river, about a quarter of a league from the town, in a very pleasant valley. The rock is an argillaceous slate, easily divided. The surface mine is situated at a place where various small veins of quartz cross one another. They are now obstructed, as all the superficial workings have fallen in. The principal vein runs from east to west, and is formed of porous quartz, coloured with oxide of iron. The Huiscapata mine was famous for its large yield of gold to its original owner, Señor D. Evarito Gallareta, who worked it from the surface some eighty years ago. When the mine was at its greatest depth from the surface, there were over ten working passages, and a large quantity of native gold in sight. It became inundated with water, which choked it in a few hours. The owner constructed a drain, with the object of emptying it, but did not connect it with the inundated workings. He commenced another drain, but having no special knowledge of the work required, expended money uselessly, without obtaining the desired result. These tunnels are at present inaccessible, having fallen in. Another tunnel was afterwards opened on the west side of the course of the principal vein, probably with the object of striking the inundated workings, but without any result. Some are of opinion that it is impossible to carry off the water from the mine by means of tunnels, because they believe the inundated workings are below the level of the river. On the bank of the river, at the foot of the mine, are the ruins of the hacienda, where the ores were refined.

Gold Mine of Carhuayo.—Less than 1 league from the town of Ocongate, on the right margin of the river, in a ravine, is the gold mine of Carhuayo, which has recently been discovered, and is, perhaps, the only mine in the province of Paucartambo which is being permanently worked. The auriferous quartz of this mine is very white, somewhat compact, and slightly transparent; it has seldom any traces of oxide of iron, but presents occasionally small stains of sulphate of copper, and small globules of native copper. This quartz does not form a true vein, but a manto, and runs parallel to the stratification of the slate, which is clayey, talcose, and ferruginous, and in some parts has a semi-crystalline structure, from the presence of granite modifying its nature. This auriferous manto is almost horizontal, running S.E. to N.W., and has a variable thickness of 20 to 25 centimètres. In this mine gold is found more abundantly near the upper wall.

Señor Gohring, who visited this mine, says that he found in the cuttings in the vicinity of the auriferous manto many stones garnished with gold. At the time he examined this mine the working was divided into four parts, resembling tunnels, the largest being 24 mètres, and the smallest 5; but according to a later communication from the owner, Señor D. Frederico Chacon, the workings have been extended 7·50 mètres in length. Two of the workings had gold visible to the naked eye disseminated in the quartz in the form of filaments and grains. The refinery is situated near the mine. The grinding and amalgamation are performed in quimbaletes, which scarcely grind 50 lb. of ore per

day, producing an average maximum of 10 oz. of gold, so that the maximum ley of gold is 12·5 kilog. per metrical ton, equal to 150 mares per cajon. There are also ores producing a lower ley. The production of the Carhuayo mine in 1872 and 1873, according to the accounts of the Administrators, amounted to 540 oz. of gold.

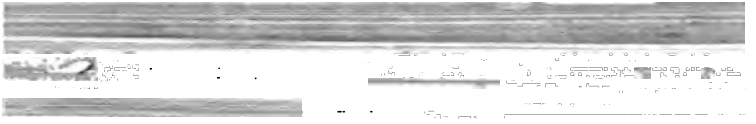
Other Gold Mines of the Quebrada of Paucartambo.—In the vicinity of Huiscapata, Carhuayo, and Ocongate, there are many mines with veins of auriferous quartz, but they are only a few mètres deep; the work cannot be continued on account of the infiltration of water. Continuing along the left bank of the river Paucartambo, about two leagues from Ocongate, near the mouth of the river Ccatcca, on its right bank, stands the Marcopata mill (now in ruins), which belonged to Señor Garmendia, in which the ores of the Ccatcca mine were ground, the mine being three leagues below, on the right side of the river. About half a league below Marcopata is the hacienda Capana, and about half a league further on is situated the aventadores of Pantipata, from which its owner, Dr. José Arambar, extracted much gold. Continuing the road about 146 yards, another gold deposit called Cocha-cocha is reached, where there exist some labourers' huts. Near this place are the haciendas Chichina, Pampacocha, Hualque, and Huatocto, the latter being situated at the mouth of the river Churo.

Following the right bank of the river Paucartambo, about five leagues from the latter place, is the hacienda of Umana, with a small ravine called the Machaypata, celebrated for its rich gold washings, in which many miners have made their fortune. In the hacienda of Umana there are not only washings but also veins of auriferous quartz, which produce a gold of very fine ley, exceeding twenty-three carats. The mines known as Alcumbrera have been worked; one owned by Señor D. Francesco Garmendia produced large quantities of gold. D. Mariano Calero is now working another vein with considerable profit. Another vein in the same cerro has been worked by D. Manuel Sarape, yielding a considerable quantity of gold, but became inundated. At the foot of the hill there are other veins, one worked by its owner. Damaso Aparicio, but now abandoned; another called Ichuna, worked by D. M. L. Aparicio; a third called Ormana-Ccata, abandoned by its owner, D. Ramon Ordonez, two years ago, for want of means. The principal washing, the Lahuisto, was abandoned for want of labourers and funds, notwithstanding its owner, Señor Ordoñez, believed he could extract large quantities of gold. Three leagues south-east of the Paucartambo mine is situated the hacienda of Cusipata, belonging to Señor Dr. Frederico Bornaz, and watered by a stream which flows into the Mapacho. In this ravine there were rich washings, but are now abandoned.

Gold Mines of Chiripuquio.—Leaving the valley of Paucartambo, and ascending (about two leagues) the valley watered by the river Churo, which empties itself into the Mapacho, near the hacienda Huatocto, we arrive at the hacienda of Pichiucha. The Chiripuquio mine, belonging to the district of Ccatcca, in the province of Paucartambo, about four leagues from Huatocho and eight from Pichiucha, is situated at the foot of a small ravine. The mine has

THE RIVER CHUNTAPUNCO, TRIBUTARY OF THE CCOÑI, VALLEY OF MARCAPATA.

Face page 7



been worked for about fifty years by Señor Mariano Alvarez, and it is calculated that it produced, free of expense, 750,000 soles, the ore being ground in a trapiche and eighteen quimbaletes, stationed half a league off, at a place called Huancapunco. Work was commenced upon a very fine vein of quartz, which became thicker lower down, until it reached ten centimètres thick. This thread is crossed in various directions by another from one to six centimètres thick, formed of compact white quartz, without pyrites, and without gold being visible. The principal thread is in a very hard crystallised slate.

Incacancha Mines.—About two leagues from Chiripuquio, between the Quiseriuma and Queñuamayo streams, tributaries of the river Churu, rises the rich Cerro Incacancha, on the summit of which are various mines, now abandoned. The rock is a very argillaceous, finely laminated slate, which in various parts appears contorted, and likewise doubled or twisted, and running in all directions. The auriferous quartz, which has penetrated this rock, filling the cracks and cavities, appears in a very irregular form, forming small veins, which run in different directions, narrowing and widening, or forming purses, which have been worked, but the cavities only remain. The mines, which have been abandoned in this cerro, are:—La Descubredora, Leqquechuni, Merced, Hatunhuailla, Santa Cruz, Quehuarñiyoc, Archihuanchiyoc, and Hualpa-Huacayñiyoc. These mines were worked at the beginning of the present century, and produced very large quantities of gold. It is calculated that more than 3,000,000 soles in gold have been extracted in a few years from them. In the Incacancha Cerro various channels are noticed which have been used to wash the earth and to discover auriferous veins. A number of wedges, chisels, and small bars of copper have been found which belonged to the ancient Peruvians, indicating that this deposit had been worked prior to the Conquest. As no remains of aqueducts can be observed on the elevated part of the cerro, where the furrows and channels are, it is probable the ancient Peruvians worked the auriferous soil only during the rainy season. Later, when the mines commenced to *brocear*, they washed the earth by means of the water collected in tanks or ponds made near the Merced mine.

Gold Washings of Churo.—Near the hacienda of Churo, on the road from Ccatcca to Paucartambo, about three leagues from Ccatcca, there is on both sides of the river an alluvial deposit called Churo, containing reddish auriferous earths, extending from the Incacancha Cerro to the Queñuamayo stream, from which immense quantities of gold have been extracted, and numerous implements belonging to ancient Peruvians. In these alluvial deposits there are numerous recent excavations made by the Indians inhabiting Churo, who discovered in this earth certain capas (stockwerk) of fine argillaceous sand, of a yellow colour, very rich in gold; it was actively worked for about six months, over two quintals of gold being extracted; among this quantity a nugget weighing 12 oz. and 14 adarmes was found. Señor Göhring had portions of earth washed in his presence, and obtained two nuggets equal to 5 oz. per cajon for one, and 12 oz. for the other; the third was very poor.

Gold Washings in the Montaña region of Paucartambo.—The province of Paucartambo has gold ores in the Montaña region. These consist of quartz, earth and auriferous sands, brought down by the rivers. Alluvial gold is found in many places in this province, though the richest region is north-north east of the town, in the valleys watered by the streams forming the river Pilcopata. These washings were formerly worked by the Indians, but are now nearly abandoned.

Gold Mines of Cerro Camante.—A few years after the conquest of Peru, the intrepid Spaniards penetrated to the remote valleys of Marcapata, then known under the name of the Andes of Carabaya, which belong to the province of Quispicanchi, in the Department of Cuzco. About twenty-five leagues from Marcapata, there is a cerro, or two conical hills, called Camante, where mines were formerly worked by a company until the bursting of a reservoir which completely flooded the workings and caused the mines to be abandoned. A commission was organised in 1836 to explore this cerro Camante, and Don José Marca Pacheo. The result he published in a pamphlet in which he says, among other matters, "Some experimental washings were made, and resulted in producing 8 oz. of gold. There is also a white substance, encharcada, which contains gold in large quantities." In the same valley there are many other places where gold is met with, viz.:—Ccorimayo, Saniaca, the valley of Ccarpi, which stream runs past the foot of the Camante Cerro, the Yanamayo which passes near the Basiri, situated in front of Camante on the other side of the river, and the Choquellusca.

Gold Mines in the Province of Chumbivilcas.—In the Cerro of Ccodaray in the district of Colquemarca, belonging to the province of Chumbivilcas, there is a gold washing, which formerly produced 2 arrobas of gold a year. The gold is of good ley, and sold in the neighbourhood in the year 1865) at 20 dollars the ounce.

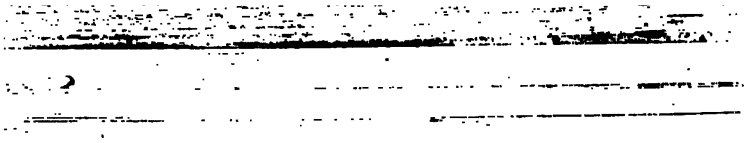
Gold Mines of the Province of Paruro.—In the district of Ccapi, of the province of Paruro, between the towns of Coyabamba and Pocoray, there is a place called Virona, where various gold mines exist. Although the place is well supplied with gold, and has an agreeable climate, the earth which contains the precious metal is so very slippery, that it causes the mining work to be dangerous by the continual fallings-in which take place. There is a tradition that a subsidence buried eighty persons, on which account this deposit remains almost abandoned. The geological formation is a decomposed diorite; in the vicinity there is a stratified diorite. The gold of these mines is of very good ley.

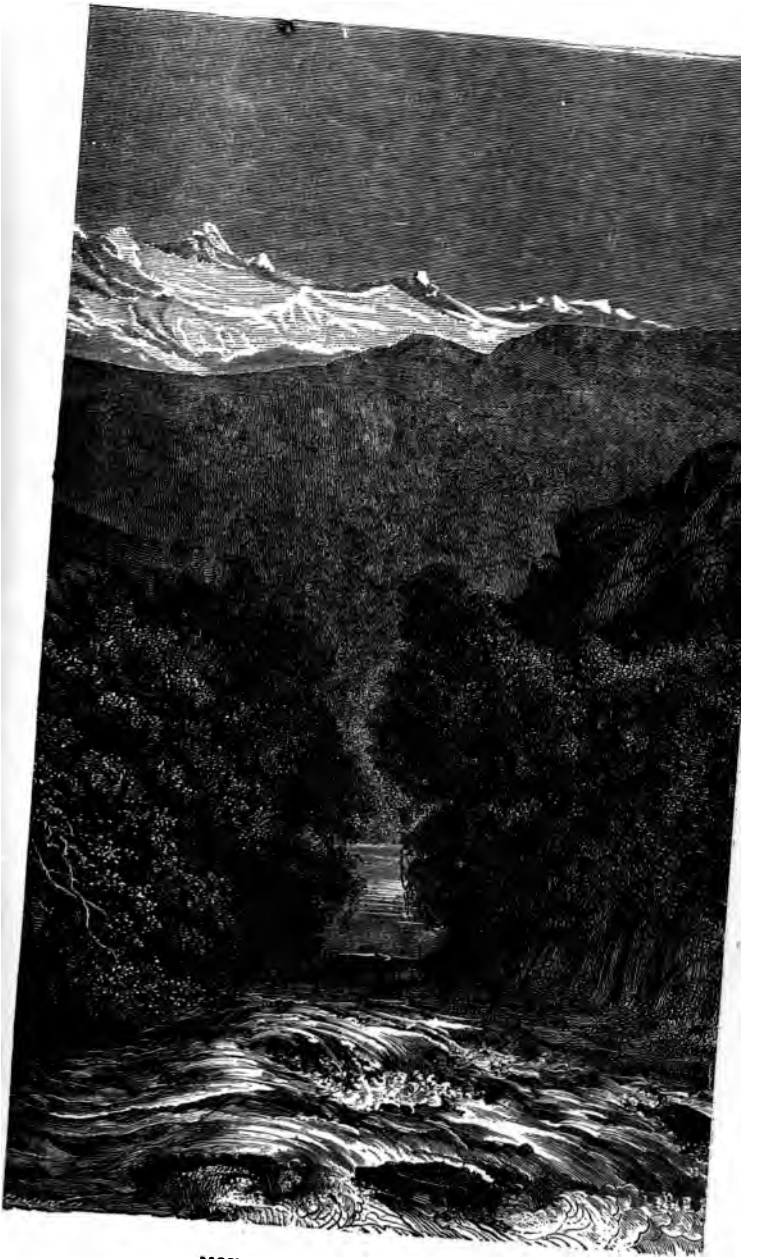
DEPARTMENT OF APURIMAC.

The Department of Apurimac, created in 1873, with the province of Andahuaylas, Department of Cuzco, has many gold washings, but most of them, the Sanayca, Carpani, Muya-Muya, Mimicuna, Anccamina, &c., are almost entirely abandoned. At present only the Huayllaripa washings are in working, although only on a small scale.

OLD DAM IN THE RIVER GAROTE. *Face page* 292.

TORRENT STREAM, SANIACA. *Face page* 292.





MOUTH OF THE RIVER CUCHOA.

Face page 292.

Gold Washings of Huayllaripa.—The small town of Huayllaripa, whose inhabitants devote themselves almost exclusively to washing the auriferous earths, is situated on the left bank of the river Pachachaca, about four leagues from the town of Challhuanca, which is the capital of the province of Aymaraes. When I visited this place in August, 1865, the Huayllaripa washings were abandoned, so that I could only obtain a specimen of yellow auriferous earth, with small pieces of syenitic rock in a state of decomposition, and talcose slate. Having analysed this specimen it resulted in containing 1 grm. of gold per metrical ton, corresponding to one adarme or 20 grms. of gold per cajon. These washings, although worked for many centuries, certainly prior to the Conquest, were, however, until a few months ago, very little known, at least as regards their importance and production. We are indebted to Professor Olaechea, who visited these washings and those of Ayahuaya, for the very precise data respecting these auriferous deposits, published in the *Boletin de Minas del Perú*, from which the following is extracted :—"The town of Huayllaripa is found in the centre of a depression surrounded by deposits of alluvial earth of considerable thickness, which the Indians call 'Los Minas de Huayllaripa.' At the foot of the town there are seen conglomerates, gravels, and pebbles, porphyric, syenitic, and quartose, the conglomerates being more common in the gravels at the bottom of the valley. The deposits of auriferous alluvial are formed of argillaceous and ferruginous earth, with fragments of rock more or less rounded; or simply composed of limonite. The principal deposits are :—Santa Rosa to the N.W., Ccaccasmina to the N., and Pampamina to the E. and S.; only the Santa Rosa and Pampamina are at the present being worked. In the Santa Rosa mine fifteen persons work during the whole year, while in Pampamina only one man. As water is very scarce, in the dry season they use it alternately. The working of gold is carried on in Huayllaripa in a most primitive way, so that they hardly extract half which the earth contains. For this work water is brought to the deposit by small channels expressly excavated in the higher parts where the limonite predominates. The water falling from a height carries away the auriferous earth, at the same time producing deep, almost vertical, furrows. The lower part of these furrows communicates with other inclined channels, in which, from time to time, champas (turfs) in small horizontal flats, 1 mètre wide, are placed, upon which is laid a grass called Ichu. The water and soil passing forcibly through the channels, and coming in contact with the champas, the particles of gold are retained by the grass. After a few days the champas are collected and dried, and afterwards washed in troughs to separate the gold. The operation of drying is not practised in other places, but the gold workers of Huayllaripa say the gold 'matures' by this operation. After the first portion of gold is collected, the champas undergo another washing. For this purpose water is poured through a small channel, the bottom being covered with a small sheepskin, with the wool cut off, upon which the finer particles of gold which escaped the first operation are retained. This gold-dust is washed from the skin in a trough and afterwards transferred to the

chua or puruña grande, with quicksilver, for amalgamation. The excess of quicksilver is strained off by means of a canvas bag, the amalgam rolled into small balls, and subjected to heat to expel the quicksilver, the gold being left behind. It has occasionally happened that dishonest individuals have put grounded stone, pieces of iron, &c., into the balls of amalgam to increase its weight. The rescatadores (traders who barter) are generally present at the making of these balls (which in the locality are called papillas), in order to avoid being defrauded. The gold of the Huayllaripa washings, the Santa Rosa, and the Pampamina is of deep yellow colour and very good ley, whilst that of the Ccaccasmina is of pale yellow and of low ley. Gold of Santa Rosa and Ccaccasmina occurs nearly always in a finely divided state, whilst in the Pampamina it almost always occurs as grains. Small nuggets have been found from a half adarme to 20 grms. in weight. The Huayllaripa mine is most active during the first three months of the year; being the rainy season, the quantity of water at disposal is more abundant. It is calculated that each person in the Santa Rosa mine extracts on an average during the rainy season 4 oz. of gold per month, and 6 oz. in the Pampamina. In the dry season the production of gold is reduced to ½ oz. per month for each worker in the Santa Rosa mine, and to 1 oz. in the Pampamina. It is easy to calculate the annual production of gold of the two mines; the result from the Santa Rosa mine is 248 oz. of gold, and 27 oz. from the Pampamina. The value of the gold produced can be ascertained by calculating that if the gold is sold in Huayllaripa at 12 soles 80 cents. the ounce, it would realise 3,520 soles."

The Gold Washings of Ayahuaya.—About 10½ leagues S.E. of the town of Challhuanca, in the district of Pachaconas, belonging to the province of Antabamba, is the town of Ayahuaya, with numerous washings in its vicinity. These washings were without doubt worked by the ancient Peruvians, as there exist indications of ancient workings, &c. The auriferous earths differ but little from those of the Huayllaripa, the only difference being that the Ayahuaya are looser. The principal auriferous deposits of Ayahuaya are the Lambraschayoc and Marcaccahuana, being the only ones worked at the present time. The Ayahuaya Indians carry on the extraction of gold on a very small scale, the total production being about 250 oz., worth about 3,200 soles per annum. The production of gold in Ayahuaya compared with that of Huayllaripa is very small; however, if the production carried on only on a small scale and with primitive methods yields a lucrative gain of 3,200 soles, it is easy to conceive that much greater results would be obtained if the works were carried on with improved machinery.

Washings of Auccampa.—Recently I had occasion to analyse a sample of auriferous earth sent me from Auccampa, a place situated a short distance from Huayllaripa. The earth was almost entirely formed of limonite, or hydrated peroxide of iron, and, on analysis, yielded 2·2 grms. of gold per metrical ton (3½ oz. per cajon).

Other Gold Washings of the Province of Antabamba.—Between the high hills which separate the Antabamba valley from that of Totora and Oropesa, there are large plains with extensive gold washings, but

these are not worked on account of the coldness of the climate and the want of necessities, the region being very sparsely populated.

Auriferous Sands of the River Pachachaca.—The river Pachachaca, which waters the provinces of Abancay and Aymaraes, brings down in its sands a considerable quantity of gold, but not throughout the whole length of the river. It is only noticed a little below Challhuanca, increasing in quantity at the haciendas of Pampatama and Casinchihua, gradually diminishing as it flows on. The gold derives its origin from the deposits of Huayllaripa and Ayahuaya. It is not difficult to account for the decrease of the gold below Casinchihua, because the river Pachachaca, in its course through the Province of Abancay, has a much slower current, consequently it has not sufficient force to carry the weighty particles of gold.

DEPARTMENT OF AREQUIPA.

The Department of Arequipa is one of the richest in gold in the whole Republic. The Union Province is especially rich in gold. The principal mines in this province are Huayllura, Palmadera, and Montesclaros.

The Gold Mines of Huayllura.—These celebrated mines belong to the district of Sayla, and are situated in the Cordilleras called Alcallara, a ramification of the elevated Cordillera of Huanzo. These mines were discovered in the year 1827, by Angelino Torres. The first were worked at a place called Pabellones; but the great output was in 1829, in the Copacabana mine, the vein of which runs N.N.E to S.S.E., and where the gold is found in charperia, which occasionally showed gold in a solid mass. The discovery of gold in these mines induced a large number of people to come from all parts, and at the time of its greatest yield (1829–30), the district numbered 14,000 inhabitants, and in three years produced over $6,000,000 worth of gold. The geological formation of this district is quartoze sand, of distinct colours, more or less compact, and disposed in a capas (stockwerk), much contorted, in some places being vertical. The upper part of this formation is covered with volcanic rocks. When I visted this place in December, 1865, there were a few miners possessing capital who were working the Pabellones, Desamparados, and Animas veins on a small scale, the first vein running E. to W. and the last N.N.E. to S.S.W. The Animas vein is almost vertical. The ore they were working at that time was very poor, and only now and then did they meet with any portions having a regular ley. The richness of the ore was reckoned at 1 adarme for each basket of 2 arrobas (82 grms. per metrical ton). The ore is refined in a primitive manner by means of quimbaletes; one man working the whole day cannot grind more than 6 arrobas. If with this antiquated system profit can be gained, it is clearly evident that by the use of modern machinery very much greater profits would be obtained.

Señor Babinski, who lately visited the gold mines in the Union Province on behalf of the Anónima Society, visited the Copacabana mine. He found the ore to consist of panabas, or grey copper,

which gave on analysis 8 oz. of gold and 36 marcs of silver per cajon, and 7 per cent. of copper. Señor Babinski is of opinion that the miners abandoned the place as soon as they perceived the ore did not contain visible gold. Huayllura is 4,330 mètres above the level of the sea, and the river Cotahuasi, in a deep ravine, is only 1,000 mètres. The Copacabana vein is almost vertical and descends to the river, consequently presenting a vast field for future exploration, as the vein is in almost virgin condition. The gold presents itself in a more or less quartoze sand, varying to a fine quartz, which the French call "grés lustré." It is also found in a species of limonite, in a pulverulent condition, known as llampo, the gold being in the form of threads, more or less contorted. It is of very good ley, being equal to 96 per cent. of pure gold.

Gold Mine of Palmadera.—This mineral district, situated about 1 league below Huayllura, is 4,100 mètres above the level of the sea. At the present time there are only two or three huts on the lower part of the cerro, temporarily occupied by some pioneers from Sayla, who occasionally extract a little gold, afterwards leaving the place completely abandoned. The population of Sayla, the capital of the district to which the Department of Palmadera belongs, is about 5 leagues distant. The geological formation is a ferruginous sand. The veins are almost vertical, the direction being from E. to W. The principal vein is the Valencia, which contains gold visible to the eye. The auriferous hills are steep on the river-side, so that the mines are always dry.

There are numerous mines in Palmadera, among them some ancient ones with workings from 20 to 40 mètres, and others which are hardly commenced, so that the deposit offers a vast field for prospecting. What is wanted in Palmadera is not gold, but the necessary water to wash the metal. The scarcity of water compels the miners to transport the ores to a pampa two leagues off, where there is a small supply of water. The cost of transport is 6 soles per cajon. Almost all the material taken from the veins has gold visible to the sight, and yields 16 oz. per cajon (166·6 grms. per metrical ton).

The gold is found in a more or less metamorphosed sand. A rich specimen in my collection shows gold in quartzite, with small crystals of quartz. The Palmadera deposit closely resembles that of Huayllura, both in its geological formation and in the position of its veins; so that it may be said that the one is the continuation of the other. In fact, the mines extend over more than 3 leagues; the Palmadera being 2 leagues beyond Huayllura, in the direction of Charcana. In this area there are 32 mines, which have been more or less worked, but can still produce large quantities of metal. The mines, commencing at Palmadera, are: — San Roman, Santa Rosa, Quele Patria, Copacabana, San Gregorio, Napoleon, Santa Eulalia, Trinidad, Santa Barbara, Rosario, Ccorichacra, Espiritu Santo, Cruz de Mayo, San José, San Jorge, San Luis, Jesus Maria, Los Angelos, Bruno Mota, Cármen, Tenorio, Egocheaga, Alvarado, Tajo or Charpera, Tasta-huayco, Cahuitones or Quispi-huaman, Pucullani, Supa-ccota, and Humapauciri. The latter is about 2 leagues from Huayllura. According to the report of Señor Babinski, it has an abundance of rich ores, samples having been obtained which exhibited specks of

gold, threads of silver and copper, in a native state. In spite of this, the mine is scarcely worked, on account of the rugged state of the country making it very difficult to reach.

Gold Mines of Montesclaros—These celebrated mines, which according to tradition yielded immense quantities of gold to the Spanish Government, are situated on the left side of the river Cotahuasi, on the side of a spur of the Cordillera, separating the river from the Salamanca. A great fall of earth and stones from the surrounding hills occurred in 1783 or 1797, burying the principal vein and a large number of workers; the mines were afterwards abandoned. Before this catastrophe occurred there existed the small town of Montesclaros, of which only the ruins of the church and some houses now remain. The climate is very temperate, the place being situated 2,260 mètres above the level of the sea. About a quarter of a league from the ruins of the town, near the river Cotahuasi, lies the principal vein, which it is stated was worked for the benefit of the King of Spain, and produced annually over 200 arrobas of gold. Señor Babinski visited this deposit in September, 1882, with the object of observing its condition; he calculated that the quantity of earth and stones covering the cerro does not exceed 9,000 cubic mètres, which could be removed by 200 or 300 workmen in three or four weeks, at an approximate expense of 4,000 silver soles. He discovered below this *débris* a gallery 40 mètres long by 0·50 mètres high, which he believes to have been opened by Señor Pierola, who undertook some workings here in 1835, but discontinued the work on account of the *débris*, and to have been made with the object of penetrating as quickly as possible the ancient workings. He surveyed the whole length of the gallery, but could not examine minutely the walls on account of the lowness of the roof; but he succeeded in obtaining a sufficient quantity of ore to make an analysis in a quimbalete and with quicksilver. From 22 lb. of ore he obtained 0·914 grms. of gold (8½ oz. of gold per cajon). Another quantitative analysis gave 8 oz. of gold per cajon. The mineral district of Montesclaros differs in appearance from that of Huayllura and Palmadera, as well in the nature of the rocks as in the position of the veins. The geological structure of the district is a dun-coloured slate, with lavas, trachites, and brachitic porphyries. The position of the veins, unlike those of Huayllura and Palmadera, is more or less horizontal, forming a manto.[1] The auriferous deposit is composed of copper pyrites of distinct colours, with quartz and sulphate of baryta. A sample of this auriferous ore, given me by Señor Babinski, is formed of numerous small stones, partly of quartz with limonite and chalcopyrites, and partly of a bluish clay containing a little carbonate of copper. Another sample, from a new vein at Montesclaros, is composed of galena, with brilliant sides. It contains a small quantity of silver and a perceptible trace of gold, The district has the advantage of a fairly good water supply. Señor Babinski, in his report on the three deposits, Huayllura, Palmadera, and Montesclaros, is of opinion

[1] A manto is a horizontal mineral deposit without formation of veins.

that preference should be given to the Montesclaros vein, which only requires a small outlay of capital to put the mine in working again.

Other Gold Mines in the Union Province. — There are a great number of gold mines in the Union Province besides the three just mentioned, which are very little known, either from want of roads or the want of population. In many places in this province ancient quimbaletes can be seen, which were used in former times for the milling and refining of ores.

The Gold Mine of Picha.—On the left bank of the river Cotahuasi, about two leagues from Charcana, the capital of the district of the same name, is situated the town of Picha, in the vicinity of which there exists an old mine of auriferous galena. The metalliferous vein is over one mètre wide on the surface, and runs in a dioritic rock almost vertical. A specimen of ore collected by Señor Babinski gave, on analysis, 41 grms. of gold and 492 grms. of silver per metrical ton (4 oz. of gold and 6 marcs of silver per cajon). It yielded also 50 per cent of lead.

The Gold Mines of the Cerro of Huanzo.—About six leagues N.N.E. of the town of Cotahuasi, at Antabamba, in the district of Huaynacota, rises the lofty cerro of Huanzo, the name given to a spur of the Cordillera. To the north there is a valley, in which potatoes are cultivated and sheep are reared; and in the slopes there are many old gold mines, in some the gold is found mixed with copper. The declivity of the cerro facing the river is formed of loose earth and stones, which roll down at the slightest blow. On this account a very rich mine in it is not worked. The mine is hardly three mètres deep; its mouth is supported by planks, called *collapo*. The people of the district occasionally work the mine, but on a very small scale, two or three weeks being occupied in extracting a few pounds of auriferous earth. The working of this mine is very original, since from fear of its falling in, they do not enter the mine, but extract the ore from the entrance by means of a long pole or cane, at the end of which is tied a kind of spoon; and after much patient work, they get out a little auriferous earth, which is formed of a loose limonite of a reddish-yellow colour, with native gold. The vein is about 20 fingers wide in the middle, and contains a variable proportion of gold; at times over one ounce has been obtained from a few pounds of earth. In Antabamba and in the Huanzo valley there are many quimbaletes of various sizes, belonging to the ancient Peruvians, some of which are used at the present time.

The Pararapa Mines.—In the district of Huaynacota, 3 leagues from Cotahuasi, in the Puna region, is situated the Pararapa Cerro with many viens and surface mines. The principal vein is of considerable extent, and has been worked in several places. Near the Cieneguilla Lake, is the Curihuaraca mine, which was worked by Señor D. Pedro José Honderma. In the Llamoca plain, at the foot of Pararapa Cerro, there are two mineral haciendas, at present neglected; in the vicinity there are many surface mines, the tailings from which form great heaps, which afford some idea of the importance of these mines. Señor Gastelú, who visited this place, found in these tailings some stones with gold visible to the eye, and entered several of the

old mines with the owner of the estate, Señor Apolinario Chirinos, and saw native gold in the walls of the vein, and in the quartz and slate forming the bridges or buttresses of the workings. One day's working yielded 1 oz. of gold, but the work was not continued on account of the danger of the mine falling in. In the interior of the mines there still exist the poles placed by the ancients, and, judging from the spacious passages they saw, these mines must have produced a considerable quantity of gold.

The Huayllapana Mines.—In the district of Huaynacota, and Pampamarca is found the mineral deposit of Huayllapana, situated in the Puna region. There are many ancient surface mines. At the present time the people extract a little gold by destroying the buttresses left by the ancients, occasioning the destruction of the mines. The gold from Huayllapana and Pararaca is not of high ley, as it contains 25 per cent. of silver. There are also many old quimbaletes.

Gold Mines of Coxchic.—About 5 leagues from Huaynacota, and 4 leagues from Huanzo, at a place called Coxchic, there are many veins of gold still in a virgin state. This deposit is situated in a puna with abundant pasture for llamas.

The Ocoruro Mines.—In Union Province, about 8 leagues from Alca town, are many surfaces mines and quimbaletes.

The Gold Mine of Condesuyos.—In the Salamanca district, in the province of Condesuyos, there are mines in Arirahua, Quiquimbro, and Aynacolca. These are very ancient, and at the present day are almost completely abandoned on account of the hardness of the ore and scarcity of gold. It is necessary to use powder to work these mines. The ley of gold has not exceeded 3 to 4 oz. per cajon.

Gold Mines of the Province of Arequipa.—This province has several mines in the following places:—

The Quebrada of Cachendo is situated between the Tambo valley and the Joya pampas, near the Arequipa railroad. Two specimens collected in the valley—the first, a silicate of iron, with distinct blue stains of silicate of copper—gold is found so minutely disseminated in the mass that it is difficult to collect the metal by washing the milled ore. A quantitative analysis of a quantity of ore gave a ley of gold of 93·74 grms. per metrical ton (9 oz. of gold per cajon). The other specimen was composed of quartz with talc and small copperous stains. This specimen gave on analysis a ley of gold of 83·33 grms. per metrical ton (8 oz. per cajon).

Gold Mines, 6 Leagues from Vitor near Siguas.—Seven years ago I received from Arequipa a specimen of auriferous ore from this mine. It was very peculiar on account of the material in which the gold was found. This material is a kind of anagenite (sulphide of copper and arsenic), of reddish colour, formed in its upper part of coarse grains of quartz and talc, of grey colour with semi-metallic brilliancy, united by a cement of felspar and quartz in much finer grains. The gold is found scattered in this rock in very fine scales, visible to the eye, and very abundant.

The Gold Mines near Quishuarani and Huasamayo.—In the Uchumayo district, in the province of Arequipa, there are two places, called Quishuarani and Huasamayo, with auriferous quartz veins, but very

little worked. In Quishuarani there is a mill, where they refine the ore extracted from the mine, about 400 yards from the left bank of the river.

Gold associated with other Minerals.—A few years ago I received from Arequipa a specimen of ore, locally known as *liga colorada*, from the Carmen mine in the Cerro de la Trinidad, 2 leagues S.E. of Tiabaya. This ore is composed of cerusite (carbonate of lead), with silicate of iron (a kind of jasper), and green stains of chrysocolla (silicate of copper), which, on analysis, gave a ley of silver equal to 19·2 marcs per cajon, and 83·33 grms. of gold per metrical ton (8 oz. per cajon).

The Gold Mines of the Province of Camaná.—In the province of Camaná there are gold mines in the Achatayhua and Huanuhuanú hills. In the latter there are many surface mines, the principal being the Santa Rita mine. Four leagues from Chala there are various copper mines, and one of gold, called Lucmila. The richest locality in the province is Posco.

The Gold Mines of Posco.—These mines are 9 leagues from the town of Caraveli; although these are but little known, they have produced large quantities of gold, and have been worked with considerable activity for over forty years. The workings are very deep, with many surface mines in the same vein. The rock is syenite, varying to talcose. The Posco ravine is very narrow, and has a stream of water, which is used in the quimbaletes for grinding the ore. In this ravine there are ruins of many huts and a chapel, with stone walls cemented with mud, which contains gold. When I visited this mineral district (Nov. 18, 1863), there were two or three persons occupied in washing and re-washing the loose refuse earth to extract the little gold it contained. At the beginning of this year (1887) Señor Onorata Montoya began to work the Posco mine, and had the good fortune to find a small vein which produced half an ounce of gold from 6 arrobas of ore (208·2 grms. per metrical ton). The Posco gold is generally whitish and under ley, but there are several mines which yield the best quality gold.

DEPARTMENT OF PUNO.

Of the seven provinces comprising the Puno Department, only two contain rich gold mines—the Carabaya and Sandia. The provinces of Sandia and Carabaya are situated in the most remote region of Peru, bordering Bolivia, and are, for the most part, on the further side of the Eastern Cordillera, a continuation of those of Bolivia, where the elevated peaks Illimani and Sorata stand pre-eminent; so that, in order to enter these provinces, it is necessary to cross this gigantic chain by narrow, broken pathways. This region has produced, and still continues to yield, immense wealth, so much so that the Carabaya region has been considered the richest in gold in the whole of South America. Its gold mines are, without doubt, the most ancient, as the name Carabaya, more or less modified into Caruaya, Collahuaya, &c., is cited by ancient historians as a place very rich in gold. According to tradition a large nugget in the form of a horse's head, weighing 4 arrobas (100 lb.), was extracted from the Inahuaya ravine,

and another seen by Garcilaso,[1] the historian, resembling a man's head, was found in 1556 in a crack in the rock.

The Mines and Gold Washings of the Province of Sandia.—The province of Sandia, created in 1875, forms part of the ancient province of Carabaya, and the district of Poto, in the province of Huancane, contains gold both in the alluvial deposits and in the quartz.

The principal gold mines and washings of the province of Sandia are the following:—

The Mineral Deposit of Poto.—This important mineral deposit is situated in the south of the eastern Cordillera, traversing the province of Sandia, and near the source of the river, passing the town of Crucero, the ancient capital of the province.

Its climate is very cold, on account of its great elevation, 4,717 mètres above the level of the sea.

The gold is found in a brown soil, composed of quartoze rock, slate, and a metamorphic sand with marly earth, distinguishing it from other auriferous earths, which are commonly of a reddish colour. The auriferous earth forms immense deposits, measuring three leagues in length, extending from the heights of Comuni and Ananea to the town of Poto. The auriferous earth contains many angular stones, which proves that they have not been subjected to the action of water, but that they have been brought down in thick masses of clay. Another fact in support of this is the mode in which the gold is presented; instead of being found in the lower part of the alluvial deposit, it is found throughout the mass; only in some parts of the marly earth, called *llinqui*, no gold occurs. Large nuggets are not found in this deposit, the largest being only one adarme (hardly 1·8 grm.), the gold generally being very fine. Different names are applied in the neighbourhood to the gold, according to its division: *afrechoso* is gold in small scales, like bran; *natoso*, smaller, easily carried by water when washed in troughs; *polvillo*, gold finely divided, which commonly is extracted by amalgamation. The Poto deposit would yield large quantities of gold if a greater quantity of water were obtainable, but unfortunately it is very scarce, notwithstanding its being so near the immense Cerros Nevados. The water for the washing of earths is brought by means of an aqueduct from a small lake at the foot of the Nevado Comuni, three miles distant, to a depôt called Cocha de Pampa Blanca. This depôt supplies water to two others, one called Cocha del Carmen; the other, Cocha de S. Antonio. On account of the scarcity of water, the same system of working cannot be adopted as in the other places in the province, where large quantities of water are thrown upon the soil until the layer which contains gold is reached. In Poto they make a great number of surface mines, from 1 to 1½ yard apart; then opening a large hole in the earth separating one mine from another, finally cutting away the pillars or bridges, and allowing the ground to fall, an operation called *chaquipaqui*, cutting the feet. The soil dug away falls into a kind of aqueduct or channel, and is broken up, in order that it may be carried away by the water, the heaviest portion containing gold

[1] Garcilaso—"Comentarios Reales," libro viii., cap. xxiv.

and stones remaining. As soon as a certain quantity is collected, they remove the stones from the deposit which remains in the channel, and afterwards the earth, then known as *quinto*, and transport it to the machine, where the gold is extracted.

The Gold Mines in Cerro Ananea.—About three leagues N.E. of Poto, and in a nevado cerro near Comuni, are the ruins of the town of Ananea, respecting which there is no historical data. The remains of a church are standing, showing that it was founded by the Spaniards. The place is 5,210 mètres above the sea, in the region of perpetual snow. Near the ruined town are many surface mines full of water, in many of which are seen beautiful stalactites of ice. These mines are excavated in a manto, following the layers of ferruginous slate, the course of which is N. 15 E. to S. 15 W., inclining to the S.S.E. at an angle of 30° to 35°.

Two veins of quartz have been discovered in a dun-coloured rock, known as *lunar;* in one, a few inches wide, coal is visible; the other, nine inches wide, contains very fine gold. The cause of the abandonment of Ananea is unknown; but it is believed to have been owing to the discovery of gold in Poto, and the mines having filled with water.

Mineral Deposit of S. Juan del Oro.—There is no data respecting this celebrated deposit, nor of the opulent town of S. Juan del Oro, which appears to have been the first founded by the Spaniards in the woody region of Carabaya, forming part of the province of Sandia. It is remarkable that the place where the imperial town of S. Juan del Oro stood is not accurately known. Some believe that it was situated in the Quebrada of Sandia, while it is affirmed by others to have been in the Quebrada of Tambopata. Having had occasion to consult some ancient documents, I have come to the conclusion that the town existed in the Quebrada of Tambopata, about one league from a place called Villa, or Villapata, or Meseta de la Villa. According to tradition, the discovery of gold in Carabaya, and the foundation of the Villa de S. Juan del Oro, is attributed to some Spanish fugitives from the armies of Pizarro and Almagro. The town rose to 3,000 inhabitants; but the greed for gold divided them into parties, causing their fall, so that in 1768 Dr. Cosme Bueno says the celebrated Villa only reckoned SIX families of Indians, and as many Spaniards.[1] At the present day all the inhabitants have disappeared, and the site of the town is unknown.

The Mineral Deposit of Aporoma.—In a ridge dividing the rivers Machicamani and Pulipuli, which descend the Nevada Cordillera to the river Inambari, to the right of the road leading from Phara to La Mina, there existed in former times the Aporoma deposit, with its rich gold mines. Although it is unknown when gold was discovered and when the town was founded, at all events it was posterior to the foundation of La Villa de S. Juan del Oro. Aporoma has yielded immense quantities of gold, and in proof of the richness of its mines is the immense outlay which was made in constructing a road and an aqueduct over two leagues long, the greater part of which is cut in the solid rock. According to a manuscript in my possession, 997,000 castellanos of gold were expended in the construction of this aqueduct.

[1] Cosme Bueno—"Efemérides" for the year 1768.

The principal mines are Allpacato, S. Juan de Pablocoya S. Gerónimo, S. Bernabé, and Mirabella. These mines in the middle of the past century were very extensively worked, so much so that the working was only continued with difficulty and to little advantage. From that time the district rapidly decayed and became depopulated, so that at the beginning of the present century it was found, like S. Juan del Oro, completely uninhabited. However, in the last few years some mines have been worked.

Discovery of Gold in the Quebrada of Challuma.—It is scarcely fifty years ago since nearly all the gold mines in the province of Sandia were stopped, when some cascarilla gatherers discovered the presence of gold in a place called Quimsahuaci; but it was only in the following year (1849) that other persons, sent by Señor Pableto de Coaza in search of cascarilla, arrived in the Quebrada of Challuma and discovered large auriferous deposits. In a very short time they spread abroad the discovery of this valuable find; the forest and solitary quebrada was quickly peopled with eager searchers for gold. The magic power of this metal converted this remote corner of the Republic into a centre of commercial activity; a town was built which received the name of Versalles; a society was formed called Trasandina; and, lastly, no lack of quarrels and litigation in connexion with the ownership of the richest lands. Mining gangs overran the whole quebrada, and new aventaderos and rebosaderos were discovered, from which great wealth was extracted, so that they weighed the gold by romanas (ordinary balances) like common goods. All the deposits of auriferous earth discovered in 1849 and 1850 in this region were in this quebrada and in the Pucumayo. The places yielding a notable quantity of gold, commencing at the lowest part, are:—Pusupunco, San Simon, San José, Cangali, Cementerio, Altagracia, where from 15 lb. of earth 13 oz. of gold were extracted, and, lastly, Quimsamayo. In the Pucumayo valley gold was found in the Natividad, Talbahuasi, and San Pedro, from which a nugget weighing 27 oz. was taken, and from 3 lb. of earth 5 oz. of gold were obtained. Above this place are Santa Fortunata and Mercedes, where a nugget weighing 40 oz. was found; Media Luna, which produced a nugget of 29 oz.; Rosario, where another nugget weighing 36 oz. was found; and, lastly, a place called Carrizal. Gold is found in the rebosaderos in small scales and nuggets of various size. On one occasion I saw a nugget weighing 53 oz. extracted by Señor Rodriguez from the Quimsamayo mine. The gold is of good quality, almost always exceeding 23 carats. A specimen from this place on analysis yielded the following results:—

Gold	... ...	96·46 per cent.
Silver	... ...	2·50 ,,
Copper	... ...	0·04 ,,
Iron	... ...	0·30 ,,

The operation of working gold in the alluvial soils in the quebradas of Challuma and Pucumayo is conducted in the following manner:—A rebosadero being found, the trees and vegetation covering it are cut down, the carga or sterile earth which covers the venero is then re-

moved by means of water. For this purpose an aqueduct is constructed from the river at its highest point above the deposit. At the end of this aqueduct is a deep pit or reservoir called a *ccocha* (lake), with a flood-gate which, when opened, causes the water to flow with great force upon the earth; men armed with bars break up the earth into small pieces. This work is continued until the *venero* is reached, known by the presence of heavy stones of margajeta and humcho (pyrites and oligist iron). The stones, called *cascajeo*, are removed, and only the auriferous earth remains, which is called *quinto*. The final operation, known as the *lava*, is the name given in this province to a kind of canal with stone walls, where the gold is separated. The *lava* is constructed as follows:—In the inclined portion of the channel a smooth plank is fixed, at the end of which a hole is dug, beyond this a baize cloth is laid some distance along the course. Small cylindrical pieces, 3 to 4 inches in diameter, of the roots of the sano-sano are arranged transversely in the hole. These pieces are called *colon-colones*. On the baize is placed a mat made of canes, arranged crossways and tied at the ends. The auriferous earth, is thrown on to the plank and washed away by water, leaving the nuggets and larger particles of gold on the plank, the finer being retained by the *colon-colones*, and the still finer dust by the mat and baize.

The Gold Mines of Ccapac-orcco or Montebello.—Near the source of the Pucumayo, a branch of the Challuma, there is a very rich cerro called Ccapac-orcco (meaning rich cerro) or Montebello, which has very rich veins. In this cerro there is a vein called the Sacramento, which runs S. by E. to N. by W., almost in the same direction of the layers of slates which form the cerro. Near this vein is another, the Recompensadora, on the side of a quebrada S.S.W. to N.N.E., declining to the S. by E. at an angle of 30° to 35°. Several deep workings in this vein show that it has been worked with advantage. At the time I visited this cerro (October, 1864), a cutting was projected to run through the quebrada with the object of meeting these workings, to facilitate operations.

The gold is accompanied with quartz, commonly called *quijo*. This material varies in aspect, sometimes almost white, at other times showing reddish stains of oxide of iron, with several small cavities; stains of arsenical pyrites or mispikel, more or less auriferous, are common. The richness of the gold varies infinitely, from quartz almost sterile to very rich gold, occurring in the form of specks, threads, small leaves, or thick crusts, called *franja* or *charperia*. Quartz, with gold not visible to the eye, has given on analysis from 60 to 120 grms. per ton. Other samples, with gold visible in small specks, have yielded 200 to 500 grms. per ton, and specimens with *charperia* 2 to 3 per cent. The gold is of very good quality, as shown by the following analysis:—

Gold	97·10	per cent.
Silver	1·80	,,
Copper	0·04	,,
Iron	0·80	,,

This specimen had the peculiarity of containing a larger proportion of iron than all the other specimens I have analysed.

Gold Washings in the Shoals of the River Huari-huari at Inambari.—Generally speaking, all the rivers in the province of Sandia contain gold, the richest being the Puli-puli, the Ccapacmayo, Pacchani, the Challuma, and the Huari-huari or Inambari. The workers not possessing the necessary capital to extract gold from the rebosadero, devote themselves to the washing of the river sand in large wooden troughs holding about 15 lb. each. The gold from the river Inambari is of superior quality, a specimen collected near the mouth of the Challuma, yielded

Gold	... ...	97·30 per cent.
Silver	... ...	2·40 ,,
Copper	... ...	0·03 ,,
Iron	... ...	0·05 ,,

Gold Mines of the Province of Carabaya.—This province, although not so well known as that of Sandia, is perhaps quite as rich in gold. Dr. Cosme Bueno, speaking of this province, says[1] "Almost the whole of the ground appears to be mixed with gold. When they clean the cistern of the spring in the square of Ayapata, they find in it chips and even small nuggets or grains of gold." The richest gold-bearing districts are Ollachea, Ayapata, Juata, Coasa, and Usicayos. The district of Ollachea contains a gold washing called El Asiento, worked many years ago but now abandoned. Ayapata with gold washings on the banks of the rivers Piquitiri and Cajitiri, affluents of the river San Gavan. Several years ago D. Agusta Aragon, owner of the Hacienda San José de Bellavista, in the San Gavan valley, discovering in the quebrada of Cajatiri the remains of a work made by the Spaniards to deviate the river, determined to work the auriferous sands. At the time of my visit to this remote region, I assured myself of the presence of gold in the sands of this river. The Juata district has some celebrated washings in the river Mucumayo, which together with the Caxili flow into the Ayapata or Esquilaya. The washings of Mucumayo were worked during the Spanish dominion, and in later times. The gold is sometimes found in large nuggets. One found in 1851 weighed 49 oz. 12 adarmes.

The district of Coasa has several washings, which are little known; the principal is that of Antiuno, situated in a quebrada of that name; the stream joins the Inambari on the right bank.

In the months of July and August the river Antiuno becomes for the most part dry, and dividing into several branches leaves small shoals of sand very rich in gold, but the working is somewhat dangerous, on account of the savages. Gold is also found in the Quebrada of Anccoccala, where there are many surface mines, veins, and rebosaderos. The district of Usicayos contains rebosaderos in the Quebrada of Macho-tocuma. The inhabitants extract gold from the shoals of the Inambari, by means of tocllas.

Gold Mines of the Province of Azángaro.—In the Muñani district,

[1] Cosme Bueno—"Efemérides" for the year 1768. Odriozola—"Documentos Literarios del Perú," vol. iii., p. 102.

belonging to the province of Azangaro, gold mines exist; the principal one is the Caño-grande, which, at the commencement of the present century, produced one quintal of gold annually.

CONCLUSION.

It is evident from the foregoing that the places in Peru bearing gold are very numerous; although all the places cited are either directly or indirectly known to me, it is probable there are many others which are unknown. Gold being so generally scattered throughout the whole of the Republic, it is really surprising that so many mines are abandoned, although they were previously worked with considerable profit. It is true there are mines which are not in favourable conditions to be worked, either from the small quantity of gold, the variableness of the veins, which at times present large spaces completely sterile, or from the want of the necessary water. There are, however, many which do not present any such obstacle; and if the works were carried on, on a large scale, would give rich returns, *e.g.* the Santo Tomas mines; those in the provinces of Pataz Union and Paucartambo; in the washings of Pallasca, Huari, Chuquibamba, Huayllaripa and Antabamba; the washings and rebosaderos on the banks of the Inambari, Mucumayo, and Aporoma.

The most important gold-bearing regions in Peru are, undoubtedly, the provinces of Sandia and Carabaya, and if as yet they have only yielded a small portion of the wealth they contain, it is not for want of gold and water, but from their being situated in the most remote corner of the Republic and the want of easy means of communication, the rugged pathways being only available on foot. To fully develop these auriferous deposits it is necessary to construct good horse-roads for the transport of the workers and machinery.

I am of opinion that before undertaking great expenses in the working of the mines and gold washings in these provinces, a company should be formed to prospect them, with the object of examining beforehand all the places where there is any probability of finding veins or deposits.

The river Inambari and all its tributaries ought to be carefully examined, and in the event of meeting with gold, it would be easier to discover from whence it came, surveying the quebrada to its source.

This class of work should be conducted by practical men, who have devoted themselves in California to discovering gold.

I do not doubt that with the opening of good roads, and a systematic survey of the Sandia and Carabaya provinces, the employment of machines like those used in California, Australia, and other places, this region will yield, for many generations, as large quantities of gold as that which made the name of Carabaya so celebrated.

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FINIS.

WYMAN AND SONS PRINTERS GREAT QUEEN STREET, LONDON, W.C.

Mining Exhibition in Lima, 1888.

IN order to give impulse and development to the Mining Industry of Peru, the Peruvian Government has resolved to hold a Mining Exhibition at Lima, to be opened on the 28th of July, 1888.

English manufacturers are invited to send exhibits. The articles which will be admitted are such as steam-engines, pumps, mineral crushers, gold and silver washing and testing apparatus, transfer railway waggons, electric lights, signals, &c.

All goods destined for the Exhibition must be so marked, and they will be admitted free of Custom House and Municipal duties.

By order,

H. GUILLAUME,

Consul-General for Peru, in Southampton.

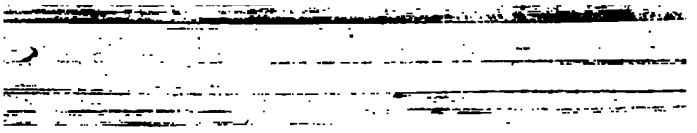
January, 1888.

NOTICE TO ENGLISH EXHIBITORS

TO THE

Mining Exhibition in Lima, 1888.

English manufacturers desiring a representative at the forthcoming Mining Exhibition should communicate with Senor Don A. Espinosa, Mining Engineer, care of Doctor M. T. Espinosa, Calle de la Pelota, Lima, giving him particulars required for their exhibits, who will receive same and give attention to all instructions English exhibitors may send him.



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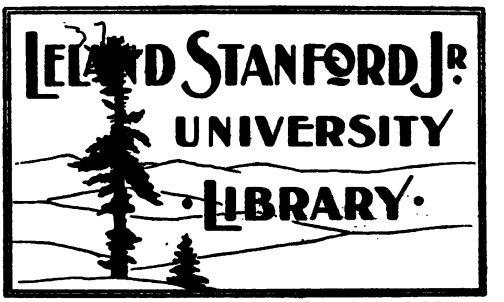

PRESENTED BY THOMAS WELTON STANFORD.

CAMPING AMONG CANNIBALS

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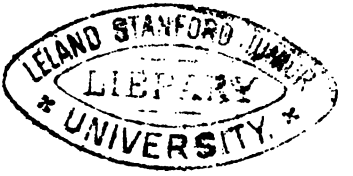

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CAMPING AMONG CANNIBALS.

CHAPTER I.

TONGATABU.

OVER the mere words "The South Pacific Islands" a strange glamour has for me always hung; a tissue of dreams, woven from threads of narrative and description in old voyages and travels, has ever in my mind enwrapped them, and many a time, before there seemed to be a chance of my visiting them in reality, have I wandered in imagination along their golden sands and beneath their lofty groves of palms. I had drifted far enough away from the quiet English town where first I dreamed of the Lotus-Eating Islands, when at last my opportunity came. It was in the daily paper of the New Zealand town I then was in that I read in the Shipping Intelligence this piece of information—"The schooner *Caledonia* for Tongatabu and Samoan Group." This was a chance not to be missed, so I packed my trunk and was off next morning for Auckland, whence the *Caledonia* sailed.

I had started with the idea that I should have to "rough it," as I knew the *Caledonia* was only a small trading-schooner, but she certainly looked even smaller and more uncomfortable than I expected when I saw her lying in her berth at the Auckland Wharf.

"She's fifty-eight ton odd," said the skipper to me shortly after I had found him and introduced myself. "Fifty-eight ton *odd*," and he said it with such pride, and laid such emphasis on the paltry hundredweight or so that constitutes the "odd," that any remarks I might have made as to her size were instantly silenced.

By the skipper I was introduced to the agent, and by him to a dozen or so of other nautical gentlemen, one of whom, a young man, was, I learned, to accompany us, being somehow interested in a part of the cargo. Him I have found a most pleasant companion.

Two bare little rooms formed the agent's offices, upon whose wooden walls hung great charts representing very large spaces of water dotted here and there with minute specks, which, on their part, stood for "the Islands." But the branches of beautiful coral and strange brightly-coloured shells on the safe and mantelpiece, and the richly-carved canoe-paddle pushed away in a corner behind a dusty file of old bills, were most suggestive of the interesting places to which they traded. Here I took my berth, and found myself, to my surprise, to be a person of some importance as "*the* passenger," for I am the only one; and here I returned after making some purchases in the town of necessaries for the voyage, as nothing was provided in the way of cabin furniture but a mattress, of which, indeed, they spoke with some complacency, but which, after I had endured for two nights its intolerable smell and dirt, I besought the skipper to have thrust below.

In the afternoon we all were ready to start, and were only waiting for our "papers" to arrive, when into the office bustled a fat methodistical-looking person, with a huge double chin and unctuous countenance, bearing a parcel of documents which he had,

according to his own account, been putting through a wonderful series of evolutions, and had "on'y jus' got 'em done in time." This gentleman, with great kindness and forethought, knowing I was "the passenger," entered at once, with that volubility only gained in a pulpit, into an account of how he too was shortly going to Tonga, "but catch him sailing for another six weeks yet: he was not going till the hurricane months were well over." He told us we should be just in the right latitude for the hurricane which would be "out" in about a fortnight. He remembered very well the sailing of the *Pearl,* which left just at this time five years ago, and she was lost and all hands, and *The Three Brothers* and *The May Queen;* "but," he ended, with an oily chuckle, "you *may* get there all right you know;" and having thus done his best to cheer us up at parting, he departed himself. All this would not have been worth the telling but that I found out afterwards that this was a man I heard a great deal of in the Tonga Islands, and who has almost unlimited power there.

After all we did not get off that day, as the breeze had fallen and we could not have cleared the harbour; but next morning saw us at the wharf long before the town was astir. I had, in my anxiety not to be too late, arrived there a full hour before the others, after passing a sleepless night, the combined result of the ceaseless activity of the mosquitoes and my own determination to awake at four. We "cooeyed" across the still water to the *Caledonia,* which was lying out in the stream, and her boat shortly put off and took us aboard. I stepped quite easily from the gunwale of the boat on to the schooner, which looked more diminutive than before by the side of the full-rigged ships

in the harbour. Here we were joined by another young man who was pulled out from shore by his brothers, who acts as supercargo, and whose mysterious duties I have hardly solved to the end of the voyage. The anchor was quickly weighed, and easily too, for it is not much of one, and after "good-byes" to the brothers we began slowly to move down the harbour.

The first thing we had to do was to try to cram our several trunks and bags into the cabin; for some time I thought it quite impossible that five men and their luggage could ever be stowed away in a cabin that looked no whit larger than those gaily-painted residences on canal boats. The bunks, however, proved roomier than I expected, and when I had induced my belongings to fit themselves in, there was still space enough for me to bestow myself in—at full length, too, if I lie crossways. At times, when we roll a little, a portmanteau or so will come floundering down on to my legs, and an avalanche of boots, books, and brushes at the same time descend upon my head from a species of shelf above it. But one grows accustomed to this sort of thing on board a little schooner. The table upon which, daily at eight, twelve, and five, appears the too, too frequent salt beef, is shaped like a flat iron to fit in the cabin, which is of the same form, and is of course very small, but we can manage to walk sideways between it and the lockers, tripping up gaily over the staples and lashings which secure it to the floor.

We are nine souls aboard. The skipper; the mate, who rejoices in the name of Billy Mustard, a silent and taciturn man, who never talks nor smiles; Gilbert, who owns part of the cargo; Stodart, the supercargo; and myself, in the cabin. "For'rad" are three men and a boy, one of the men being cook.

Of course we have music aboard; what ship was ever without it? The very first evening Johnny, the boy, produced a dreadful moaning instrument, and, for an hour, entertained us with a selection of most dismal tunes, which he said, as indeed seemed probable, he had learned by ear. At the end of the performance I went to him and hypocritically spoke in favourable terms of the beauties of the concertina. I need not have perjured myself, for he waxed very indignant, and glaring at me with his little peepy eyes as though he would wither me where I stood, he replied, "This ain't no concertina, it's a harcordium." Nor is the "harcordium" the only source of harmony we have aboard: we, too, have music astern. For lo! in the cabin is a polished wooden box, upon whose hingeless lid is inlaid the counterfeit presentiment of a shell, more gorgeously tropical as to spines and knobs than any I ever saw on island beach. And is not this a musical box? The accomplished makers, according to a tattered inscription on the inside, guarantee it to play "Quatre Airs;" but, alas, from some defect in the mechanism, induced by too frequent salt breezes and old age combined, this number is reduced to one, and a more ridiculous tune I never heard. Popular tradition on board, from information received from former skippers—for the box is a fixture and skippers are not —states that this is a fantasia upon the Chinese National Anthem. I am not well acquainted with the music of the Celestial Empire, but should think that their ballads do partake very much of this character. The supercargo, being a youth of refined tastes, has this barbaric tinkling four or five times a day; and sometimes in the dead of night, when we give a lurch of a little extra extent, the diabolical machine will

produce, of its own accord, this wretched Chinese hymn, which it will play, in a jerky way, until it gets to within a couple of notes of the end, and then stops short in the most distracting manner.

Two days out we began to have most lovely weather, and the Pacific did not belie its name. I rapidly recovered from sea-sickness and was able to enjoy everything that the cook sent us at meal times, though some of the dishes were curious. I was ill at first, for, although custom has made me a moderately good sailor, I have had no experience of so small a craft as this where the motion is so short and quick. At first, too, I was troubled by the cockroaches and other shiny-coated gentry who perambulate and amble over one at night. Not only are they cannibal but omnivorous, and to preserve my travelling bag and trunk from their assaults I now strew about my bunk bait in the form of old boots and shoes for their delight, they having an inordinate passion for those articles. I am always up at sunrise, and take my bath when the deck is washed, sitting, like a Triton, just at the break of the poop, having buckets of water thrown at me by one of the two able-bodied seamen that form our crew, just as long as I think his patience will hold out. Our fresh water is in a square tank on the deck, and is of a rusty yellow colour; when thirsty one has only to seize "the dipper," and, lowering it through the small opening, with the rather slimy string, pull up as much water as one wants, like an educated bullfinch. By the side of this we—such as wish to—wash in an iron basin placed upon the harness cask, where the salt junk lies pickling, and there, with the pint of water we each may use, swilling about from side to side, we wash as best we may.

Day after day we have glided along, seeing no sail but the diminutive ones of the "Portuguese men-of-war," whole armadas of which pass us in most unwar-like brilliancy of colour; and no land but Raoul Island, one of the Kermadecs, when we were eight days out. On that island there lives, for reasons best known to himself, a man with his wife and three children, completely shut off from the outer world, for no ships regularly call there; he is dependent, for everything they cannot produce in the island, upon the rare visits of some whaler calling for water. Day after day the same broad blue expanse of water greets us, its monotony only broken by the appearance of some great shark that we should try to catch, and once by the approach of some mysterious denizen of the deep that I thought was a whale and her calf, but which the impassioned supercargo declared was the great sea-serpent, an account of which, signed by one or two of the crew, will appear, I believe, in the Auckland papers on the return of the *Caledonia*. Time passes calmly by in these calm seas, and it is occupation enough to sit and watch the gorgeous *medusæ* palpitating past, their crystal bells of blue or crimson regularly expanding and contracting in the unnaturally, præternaturally blue water. To steer a little and leave a shamefully serpentining track, to try to catch some cunning old albatross who is far too wary to be hooked; to follow the shadow of the sails as they move across the deck with my finger between the pages of a book in which I make a vain pretence of reading — vain, because there is always something to be seen or something to be done on board a little schooner where every one lends a hand—make up my usual day. No letters to be received and none to write, no appointments to be

kept and nowhere to be obliged to go, all one's meals occurring with a charming regularity, and being of not quite so charming a sameness. Salt beef, biscuit, cheese, bread, and pickles, all being excellent articles in their way, but one may grow just a trifle weary of seeing them three times a day for several weeks. Then there is no trouble about one's dress: a pair of trousers, the older the better, a shirt and a shady hat, and there we stand confessed, as often without shoes and stockings as with them. We sleep when we like and get up when we like, often turning out in the middle of the night for a prowl on deck—they to see the state of the weather or have a smoke, and I—romantic youth—to watch the glorious beauty of the stars. How they blaze and burn in these southern heavens! I cannot think how people who have both wealth of time and money can travel by noisy, dirty steamers, which by their very din and commotion frighten from them every wonder of the deep, when they could, if they would, *sail* over the great sea and watch it in all the beauty of its calm and the grandeur of its storm. Seen from the hurricane-deck of a crowded steamer the sea loses all its charm, and to know it as it is, and to love it for what it is, one must live with it; float on it when becalmed, hot, glassy, and clear; or career and bound over it before a gale, when dull-coloured but living, at the wayward will of the winds and of itself. Tear through it with the monotonous "thud-thud" and even pace of time-regulated steamers, and one can never know the ocean.

Our skipper, or master as he calls himself, is a great deep-chested, pleasant, even-tempered man, who ran away from his home in Huntingdonshire at the early age of eight, and has since then gone through many

marvellous and some few discreditable adventures, all of which he relates with equal openness and unreserve. He is very much attached to amateur doctoring, and every one knows when an amateur is seized with this passion how fiercely the fever rages. He is ready with his medicine chest upon the slightest provocation, and the hash he makes of the names of the drugs, and the curious uses to which he would apply them, are vastly entertaining. He recommends me ipecacuanha for indigestion; and the other day the unfortunate Johnny having sprained his wrist, the skipper bore down upon him with an old stone ginger-beer bottle of Epsom salts and insisted upon his taking it upon the spot.

Unfortunately, quiet times cannot last for ever, and I was almost sorry when the skipper told us that to-morrow he hoped to sight Tonga, for though to see the Islands was the reason of my leaving home, the getting to them has been so pleasant that I could have wished almost that the time had been doubled. Next morning, dim through the haze, loomed Eua, our first port of call. It is one of the Tongatabu group, the Friendly Isles, and is a bold looking island, its highest land being 600 feet above sea-level. I was all excitement, this being my first glimpse of the tropics, and as we neared the land my excitement only increased, for I could distinguish the coco-palms growing thick upon a little islet that we had to round to get to the anchorage, and had I not longed all my life to see the coco-palms growing from the sands? A little rocky islet covered with luxuriant vegetation, mostly of tall palms, with the mighty surf booming and roaring round it, tearing the rocks within its reach, is enough, I think, to excite the most phlegmatic of men, which I am not. Reefs are everywhere about the island, and the surf

dashes upon them scattering itself into great sheets of white spray twenty or thirty feet high. This has a most beautiful and astonishing effect, for the sea seems calm and motionless, except for the general ocean swell; but as the water nears the reef it rises in a great grand curve which shines out emerald green against the dark pure blue of the deeper water, and dashing itself, with its mighty force, upon the reef, it rises in the air a cloud of white spray. It does not curl over and break like a wave, but rises suddenly, from the check given to its impetus by the rocks of the reef, with a rush and roar as of some gigantic thing set free for a moment only to fall captive again the next in a dazzling shower.

The day is hot and the sky blue and clear; over the island fly flocks of pure white tropic birds, pairs of which often separate themselves and fly together higher and higher till almost lost in the cloudless sky. We passed up the west coast of the island pleasantly enough, but found upon rounding the point that we should be unable, on account of the wind, to land; ships have to anchor out in the open at Eua, as there is no harbour, but the wind blowing freshly from the north prevented our doing so with any safety. Had it been another time of the year, the skipper said he should not mind anchoring there, but now, in these, the hurricane months, the weather is so very treacherous that he feared being blown ashore. I was annoyed at this, as after weeks of sailing the sight of land makes one's very muscles twitch for exercise, and Eua looked so beautiful. Beyond the great rocks and reefs on which the surf breaks tireless and unceasing, commences the belt of dense and beautiful bush that extends some distance up the island. Close to the shore, within

reach of the wind-driven spray, runs the line of coco-palms which surrounds the island; at some height above the sea they cease, and a dense growth of other trees takes their place. The centre of the island, all the higher part, is bare of bush, but is of a fine green, and here, I believe, the white man settled on the island is trying to introduce and breed sheep for wool-growing purposes. From what I hear he is labouring under great difficulties, as the natives kill and eat many of his finest stock, and are not punished for doing so, as they say that the animals wander on to their lands. The owner cannot well fence in all his property to prevent them from straying, and so the thing goes on. I have no doubt they will settle the dispute amicably, as there is little litigiousness in the Friendly Islands, and no lawyers. Oh happy Tonga!

I tried to induce the skipper to risk a landing, but it was of no avail. I reminded him that we had a mail for Eua and ought to land it, but all he troubled about it was to say, "Oh yes, but we can take that with us to Tonga, and I daresay it will get across in a week or so." It certainly did seem a rather feeble excuse to land, for, as far as I could discover by pinching and otherwise investigating the bag, which reposed in one of the lockers on which we sit, it only consists of two letters. So without wasting time we altered our course for Tonga, which lies, a long low line on the horizon, nine miles away. It took us about four hours to sail across, but we could not get in after all, as it was growing late and soon would be dark, and the navigation about here is so very intricate, because of the many islets and long stretches of reef. You see a long line of broken water, right away from land, and you know

that below lies a coral reef. This group, too, is not very well known, and the charts mark "imperfectly surveyed," so that we have to keep a man in the cross-trees to shout down directions to the man at the wheel, and obviously this cannot be done at night, so we kept tacking in the channel between the islands till morning, sometimes approaching quite close to Eua, but fighting shy of Tongatabu with all its reefs and rocks.

The next morning broke dull and gray, and I feared that I should become acquainted with tropic islands with the unpleasant adjunct of tropic rain; but as the day grew older it improved and brightened, till towards ten o'clock, when we began to get amongst the reefs, it had glorified into a perfect day of sunshine and blue sky. A constant look-out of two men in the cross-trees had to be kept, the water often breaking all round us in long lines of foam, and occasionally there is but a narrow passage of deep water between the reefs. Billy Mustard, the silent mate, now came to the front: having cruised for years in these waters, he knows by heart every in and out of the reef, and notwithstanding some noisy contentions between him and the impassioned supercargo, who has also visited Tonga several times, they managed to bring us to anchor safely in the harbour, somewhat to my astonishment, as they both endeavoured to clear their heads and refresh their memories with copious applications (internal) of "square" gin. The water is really wonderfully beautiful, so bright are its tints and so clear its transparence; when over sand or coral patches it is of the loveliest turquoise colour, and when over rock of the darkest sapphire; and everywhere one sees the water in streaks and patches of these violently-contrasted tints.

Tongatabu is a low-lying crescent-shaped island, an abrupt little hill in Nukualofa, its highest part, only rising to a height of fifty-five feet. Seen from the sea it seems one mass of coco-palms, so dense is the fringe of them round the shore. The town of Nukualofa, the capital, is not impressive, as it consists chiefly of hideous erections in wood put up by an erstwhile missionary, cast off by his order, who has wheedled his way into old King George's graces till now he is supreme in these islands. I cannot speak of this calmly, so hot is my indignation against the shameless acts of this Vandal. Years ago the grassy road that lies along the shore in front of Nukualofa was beautified and shaded by an avenue of ancient trees, planted by the natives generations back; behind this stood their quaint and charming buildings, all of which, in one part, have been removed and replaced by pretentious wooden erections, presumably of the reverend gentleman's own design; a hideous "palace" for the king, awful government buildings, and a great gaol, which the ordinances and restrictions invented and framed by the same reverend gentleman manage generally to keep full; and last, but certainly not least, the large and handsome house of the poor self-sacrificing missionary himself. Thinking that the beauty and grandeur of these erections could not well be seen by incoming vessels, he ruthlessly cut down the shady avenue where generations had played and strolled and rested, and left a monument of self-glorification—these white staring sheds he had caused to be put up—as glowing and shadeless as they are unnecessary and hideous. There certainly may have been, and probably were, other and more mercenary motives for the erection of these buildings, but of those I cannot

speak. I asked a native afterwards why they did not plant young trees that an avenue might again, in years to come, give its grateful shade. "What would be the use," said he bitterly, "when maybe the next missionary that got power would have them all removed."

There are eight or ten small islands in the harbour, if you can call it one, in which we are now lying, and all are covered with palms and small bushes; they rise but a very few feet above the sea-level—their golden sands and crown of palms seem floating on the smooth surface of the reef-protected sea. Amongst these we steered our course, and at about twelve, the day having become scorchingly hot, we had almost reached the shore and began taking in sail, and let go the anchor, which we did about three hundred yards from land. We could see brown natives walking on the beach, and some busily at work forming a rough sort of pier of coral rock, from which there put off a boat containing four splendid-looking fellows, three rowing, and one sitting in the stern, wearing, besides the usual *vala* or waistcloth, a thick jacket of leather lined with red flannel, which does not meet round him and shows his naked flesh between with a very funny effect. Doubtless it adds much to his dignity, but he must suffer torments from the heat of it. This gentleman, Friday, quickly boarded us; he is a great fat man, the picture of good humour, and in his one body personifies Mail-master, Harbour-master, Officer of Health, and I know not how many other posts. He brought all sorts of papers, which he did not understand in the least, and an imposing looking scroll, inscribed by my friend the minister, with all sorts of pains and penalties that we are to suffer if we transgress the regulations there set down. We were much amused by the list of fines

imposed for all manner of charming little vices, so many dollars for this and so many for that, which doubtless would greatly increase the balance at the exchequer if only they could get them; the natives of course have to pay, but I think the lordly white generally goes scot free. Friday and his men coming on board, we regaled them with cheese and biscuits and other delicacies; Friday, I fear, putting a series of hieroglyphics, which he and the missionary teachers say is his signature, at the foot of our papers, without much trouble or questioning, upon receiving a little gin, the sale of which to natives in Tonga is strictly and wisely forbidden by the king, George Tubou. He was very pressing in his invitations for some of us to go over to his island, which lies about three miles out, and spend a day there, and I hope during my stay in Tonga to do so. Gilbert and I went ashore with him, his three brawny men rowing us. They are enormously muscular, and their dress—a narrow strip of native cloth round their loins, over which often hangs a sort of fringe of aromatic smelling leaves—shows their beautiful make to great advantage.

As we passed the little pier or breakwater that is being reconstructed, a hurricane which occurred about a week ago, and which we fortunately missed, having carried away one end of it, a whole crowd of natives stood up to see us, shouting greetings as we passed. Very wild and picturesque they looked in their bright coloured *valas*, which contrasted well with the rich tones of their skins. Friday informed us that these were all prisoners, who being unable to pay the fines imposed, have to come here and work off the amount. Men and women work together, and seem to feel their position very little, as nearly all are being punished

for what goes unpunished at home, and they feel no shame, as they know nothing will be thought of it by their friends when their term of punishment is finished. It is a marvel to me that they bear so calmly the tyranny of the missionaries, for it is mostly they that impose these laws. Why should Polynesian people be taxed, fined, and imprisoned according to the rules of the civilisation of an alien race? Many a time since that day I first landed in Tonga have I wished I were a native of those islands: were I so for a time, one of my first acts should be to stir up, and head if necessary, a revolt against what must be a most galling yoke. But these natives are a childlike and superstitious race, and the hell-fire doctrine generally propounded by these gentle teachers of Christianity subjugates and subdues them. I should be sorry to class all missionaries together, for there are some that are, I am sure, earnest and devout men, and in some few places they may have done good; for instance (to give the devil his due), I believe it is chiefly owing to their exertions that cannibalism is nearly extinct in the greater part of Fiji; but I must say that the system of Europeanisation, rather than civilisation, that they endeavour in most places to introduce, is not only unbeneficial but harmful to the native races. Habits and customs of countless generations are repressed, with the result that deceit and falsehood are added to their other faults. Perhaps it is that the influence of white men, apart from missionaries, is a cause of harm: this may be, and probably is; but it is universally admitted by all who know anything of this part of Polynesia, that the farther away from the mission settlements a native is the better he is and the more to be trusted.

I shall never forget my sensations of wild delight

and excitement upon landing for the first time on one of these lovely coral islands; to have the dream of one's life thus realised, and to be able to wander whithersoever one would in the dim light of the glorious bush, or by the blue water of the sea, is, I think, enough to intoxicate one. I know the few whites who came down to the shore to see us land must have thought me a very lunatic from the way I rushed off. A narrow channel has been cut through the coral so that boats can come at low tide quite up to the beach, so, standing on the bows of the boat, I but waited for a wave to recede and sprang ashore. The sand is a bright gold colour, and this was my first surprise, for I fail to see why sand should be yellow that is composed chiefly of ground-down white coral. Just beyond this belt of gold is a broad strip of soft green turf that runs—most delightful of roads—along the shore in front of Nukualofa. This turf is kept short by a few horses—thin, miserable, dejected animals, that suffer intensely from the heat; and by whole crowds of pigs—nice clean pigs, though of the scraggiest nature, that vary from the tenderest infancy to the hoariest old age. These trot about everywhere, and how everybody knows his own pig is a mystery to me. They have a distinct character of their own: once having seen them you could never mistake a Pacific Island pig for any other, see him where you would; their long thin snouts, rugged spines, and general flatness—the whole pig looking as narrow as a flitch at home—stamp them as a pig apart. Beyond this road of turf commence the coco-palms, a great ring of which surrounds the whole island, and amongst their sloping stems, in little clearings, stand the houses and the few sheds that form the capital of Tongatabu. The

European traders' buildings are pretty, well built, brightly coloured little places, and the native residences are small but comfortable.

Tongan houses are oval, and are formed thus:—Two posts of twelve or fourteen feet in height support the roof-pole, which is lashed to them, and this supports in its turn the long bamboos of which the rafters are made, and which rest on but project beyond the short posts to which are fastened the reed-weaving which forms the sides. The roof is formed of thick thatch, kept in its place by long boughs of the coco-palm; there is no chimney nor even smoke vent, as fires are very seldom lighted inside the dwellings. There is no window, as sufficient light comes in at the two low doors, at one of which some woman is generally sitting busy with her *tappa* making, or some other household work. As for furniture there is never very much in these houses,—a few mats, and a wooden chest in which their treasures are packed away, and on the floor are generally one or two of the wooden pillows that they use. These are often nothing but pieces of bamboo raised a little at either end on wooden feet, but sometimes they are made of a hard dark wood, and are charmingly decorated. The king's house, as I said before, is a large and hideous erection, and is distinguished by possessing a little tower and a big flagstaff. But I did not want to see the town, any more than I did the white traders, so I started up the grassy broom road, stared at and recognised as a stranger by every native that I passed.

With the sound of the surf still in my ears, and the sweet night air blowing softly into the cabin where I am writing, I feel utterly unable to describe what I have seen to-day in my first tropic walk. I have been, and

still am, far too excited to remember much. I know I have been astonished and delighted with everything I have seen, and that nothing has been at all like what I expected it would be. For instance, although I have read so many books about these islands and their fruits and flowers, it was quite a surprise to find a coco-palm to be what it is. Travellers, and people who write books of travel (not at all the same thing by-the-by), always seem to take for granted that their readers know as much as they do about common objects of the Tropics, so that they never deign to stop to describe the most frequent, and consequently the most typical ones. Now here was I, well up in travels from Captain Cook downwards, labouring under the delusion that coco-nuts grew singly on the top of the palm in the sort of cup formed by the branches, and I am not sure that my vivid imaginings had not decorated the nut with a sort of tuft at the top from which the celebrated fibre (I always called it "coir") was made. It is very different from that. The palms are all of different heights, and are leaning in all directions instead of being proudly erect as I had pictured them; the crown of leaves, instead of being airy, filmy, and floating, and emerald-hued, is decidedly stiff in texture, although exquisitely graceful in curvature, and is quite a dull yellowish and dark green, and the mid-rib a good, solid, heavy piece of timber. The nut is covered with a thick coat of fibrous matter, and is smooth and bright; they grow in clusters underneath the leaves, just at the top of the tree, and as many as sixty to a hundred on one palm. In taste it is about as much like the hard, dried-up nuts that we get at home as the real tree is to my imagined one. Years ago, when I was a small boy, I used to wish myself in the land where coco-nuts grew and where I

should not have to pay sixpence (eightpence for a large one) for each one that I wanted. Here they are to be had for the asking, and they are lying on the shore and under the trees in all stages of growth, from the tiny baby one the size of a walnut, pushed off the stem by its more vigorous brothers, to huge full-grown ones as large as a big Dutch cheese. A young coco-palm, before the stem has grown, and when all the branches spring from the ground, or close to it, is one of the very loveliest things in nature, the boughs are so large and graceful; when planted on either side of a road they meet overhead, forming a vista of arches more beautiful than any Gothic aisle.

Beneath and between the palms grow all sorts of bushes that I did not know anything about, but whose wondrous beauty I could feast on—a perpetual feast, too, for I never tire of them, and they never give over blooming. There is one which attains a height of twenty or thirty feet, and grows almost first in the line of green on the edge of the shore, that is covered with great flowers of pale yellow, with deep centres of a dark claret colour. This is the hybiscus. It is something like the single hollyhocks that grow in old cottage gardens at home, and it has a large pistil and stamens that powdered my too confiding nose when I essayed to smell it. Then there is the single gardenia, covered with its white clematis-shaped flowers, with which the whole air is fragrant, and which the native girls pluck and place in their dusky hair, forming coronals more beautiful than many a one of gems. About these flowers large butterflies float languidly—one of a royal purple, dark and lustrous, with eyes of a lighter shade of colour than that marked upon his wings; and many others equally beautiful. Ah, what a hopeless task it seems

to try to describe even a tithe of the beauties of these glorious islands! There is a rapturous intoxication in the very air one breathes, a sense of beauty everywhere around, in earth and sea and air, that it is impossible to describe with mere pen and ink. It is a great mistake to travel alone: I miss having a companion more than I can say, for every moment there is something strange, or new, or beautiful, of which one wants to speak.

Even in this, my first walk, I noticed how much we owe here to the leguminous plants, as at home, for the beauty of the country. A large pea-like plant covers the sand and holds it together, only just above high-water mark, and over the bushes grows another of the same family, with beautiful flowers of a golden yellow.

As you walk along the ground seems to crackle under your feet. This I ascribed at first to the dryness of the coarse grass, but which I very soon saw was caused by the crowds of grasshoppers that sprang up in every direction at each step. But while I am speaking of the insects I must say something of the spiders: they certainly are astonishing, and are among the objects one first notices. Between the boughs of the hybiscus are woven great nets, a foot or more across, of strong golden coloured thread, and these nets are made "taut" by even stronger stays of fibre, that stretch five or six feet sometimes to a convenient bough. Some of the thickest of these threads are quite unpleasantly strong when they catch your face in walking, they are so tough and elastic. In the very centre of the webs, and they are innumerable, sit huge spiders, with bodies as large, in fine specimens, as a good big cherry, and legs two or three inches long.

But what is the use of talking of spiders when

there are animals—splendid animals—of so much greater interest to speak of; I mean the charming men and delightful women of these islands. I had not gone very far before I became aware of many a pair of bright laughing eyes peeping out at me from the shelter of the little houses. They saw at once that I was a stranger to the island, for truly they knew everybody on it, and naturally they took an interest in me. I walked calmly on as though I did not see them, for at first, poor fellow, I did not know their little ways, though, to be sure, I very soon learned them. I soon met two fine-looking fellows, wearing the usual dress, and carrying over their shoulders a basket full of fruits. They stopped me, or I stopped them, it is difficult to say which; but we stopped and had a little conversation, which it is perhaps needless to say neither of us understood, as they talked in their delightful liquid Tongan, and I in my usual pure English. They unshouldered their basket, with the prompt hospitality of Tongans, and offered me of its contents, which I as promptly took, choosing a stick of green bamboo-looking stuff, because I thought I should not like the unripe bananas, which were the only alternative. I did not at all know what to do with it when I had it, as I already had a walking stick, and seeing my hesitation, one of these two good fellows took it from me, and with his strong white teeth began to tear off the hard outside covering. Then it struck me that probably it was sugar-cane, which notion I tested experimentally when the cane was returned to me. It proved to be so, for when I put my teeth into the white short substance, I felt the sugar trickling in sticky streams all about my lips; one has to take great bites of the crisp cane, which one immediately chews, and spits out, as elegantly as possible, the woody fibre that

is left. These traces of sugar-cane consumption are seen all along the roads and paths.

I was walking about all the afternoon in the bush and along the paths, and at about five o'clock, being near the little coral quay, I was shouted to from a boat full of natives just starting from the shore. I found it was Friday, with his sturdy rowers and his two charming daughters, one quite a lovely girl, and shining deliciously with palm oil, having put on an extra quantity for the occasion. As a rule, the oil they put on does not show, as they rub it into the skin, making it as soft and sleek as satin, but not at all greasy.

The inhabitants of the Friendly Islands are not at all the colour that I thought to find them: they are far from being as dark as I expected. I think the best idea that I can give of their delightful colour is to say that it very much resembles that of a cup of good coffee with a great deal of rich cream in it. They are muscular, cheerful-looking, and well fed; and their features are, I think, much better than the English average, being in many cases regular and fine. The nose may be rather broad at the base, but it is frequently well cut; the mouth is large and the lips a trifle full, but the teeth they disclose are strong and white and even, and their eyes are large and dark and lustrous. The women of Tonga have, I verily believe, the most beautiful eyes in the world, and they know how to use them too. Liquid, soft, and speaking, they glance through the fringe of their silken lashes in a manner that is indescribably sweet. Their dress consists of a cloth fastened round the waist, which hangs down below the knees; the body has no covering, and they go bareheaded. The missionaries, with their usual idiotic interference, have tried to alter this sensible

dress, which is decent, even according to our artificial notions of modesty, and most admirably suited to the climate. They insist on the women wearing a sort of absurd pinafore, which is left off on every possible occasion; and some time ago a law was made that every man should wear European dress of shirt and trousers, and leave off the charming *vala*. To enforce this iniquitous law the manufacture of *tappa*, the native made cloth, was prohibited, so that perforce the natives had to purchase European fabrics, a thing very greatly to the advantage of the traders, through whose influence with the minister this disgraceful state of affairs was brought about. But even the worm will turn, and this was too much for the gentle Tongan, and the law has wisely been repealed by the king. To such an extreme was the enforcement of this act carried, that any man seen without trousers and shirt on the turf road in Nukualofa was liable to a fine of many dollars. It seems a queer state of affairs that a man cannot walk along the very road his ancestors made, in the dress of his country, but must don the hideous garments of an intruding people. In the church at Tongatabu, where the intelligent missionary of course rules supreme, this ordinance, which forbids any man to attend the service except he comes in European costume, is still enforced. It is perhaps needless to say that the women have to wear bonnets or hats, because St. Paul said that in his opinion it was seemly for a woman to have her head covered, so these poor creatures have to discard their wreaths and natural flowers, and stick on their heads bonnets or hats adorned with feathers and artificial flowers, like any factory hand in England. Certainly, one of the late missionaries, still living in Tonga, is shrewdly suspected of having

received a bribe from the German traders there to frame and pass these regulations, that were so greatly to their advantage, and I am told even received a decoration of some sort from the German Government for his generally unpatriotic, if not treasonable, behaviour.

But while I have been making this short digression I have reached the little quay to which Friday's boat has put back; and room being made for me, I jumped in and sat down between the two Miss Fridays. It is blazingly hot on the water, but I did not notice that very much, as my attention was fixed upon the wonders of the bright coral garden below us. There in the clear depths bloom with most wondrous colours these strange ocean flowers; incredibly bright are their blues and purples, gold and rose tints; strange zoophytic forms, too, with their fringe of tentacles waving, are of every gorgeous hue; and fish flit in and out their mimic caves and grottoes as bright as they. One of the most beautiful and wonderful sights of all this bright tropic world are these rich sea gardens.

In the cool of the evening, when the fierce sun had set, some of us lazily pulled ashore in our own heavy boat, and Gilbert and I went visiting some of the white settlers that he knows here. Most of them are Germans, some of whom have married native women, and have broods of little dusky children tumbling about their houses. The evening's cool, or comparative cool, after the heat of the day, is delicious; many people are out and about, strolling along the turfy road just above the sea; the beating of the surf upon the reef is heard with greater distinctness in the silence of the night; the stars are shining with a golden radiance in the deep blue of the sky; here and there a light shines softly

through the palms, and now and then dim figures, white-robed, pass us, hand-in-hand, idyllic. It seems a dream, a quiet dream.

When we again reached the little landing-place no boat was to be seen; the others had arrived first and gone off, and left us to our fate ashore; and although I "cooeyed" to the *Caledonia* till I was hoarse, they would not hear, and we had made up our minds to bear it like philosophers and stay on shore, when we fortunately stumbled upon three natives who paddled us across with the greatest kindness. Here I now am very tired and very sleepy, trying my utmost, and failing, to write a coherent account of what I have been doing all this wondrous day. The tallow candle in the japanned candlestick is guttering away, and the smoky flame is quivering in the light breeze that comes through the skylight overhead. The silent mate, Billy Mustard, has just come aboard somehow, most awfully drunk, and just as awfully blasphemous; I hear him now cursing away on the quarterdeck, where he has gone to slumber through a pleasant shower of heavy rain, under the impression that he is in his own bunk.

CHAPTER II.

TONGATABU—(*continued*).

To attempt to tell even a part of what I have seen in these first few days is really more than I can do; all day long I am in a wild state of admiration and delight, for everything I see is novel and fresh to me. I rise with the lark, or let me say the *cooee*, for the sake of local colour, and because there are no larks hereabouts, and soon after some of us would put off in the boat and row to a convenient place for a bathe. There are a great many sharks about, but if several bathe together the noise and splashing frighten them away. What glorious bathing it is I need not say, the water clear as the sky above it, and so warm and pleasant that an hour in it does not chill; then diving down into the crystal depths, almost to the branching corals with their gorgeous hues, or springing after some small fish, sky-blue, or striped, or gold, and always missing him: I never had such bathing before.

One of the days I remember, after my morning swim, I began a little sketch of Nukualofa from the schooner, much to the delight of a jolly brown native, who sat beside me from the very commencement to the end, and whose joy knew no bounds when I laid on the colour pretty thickly. I fear that in my endeavours to raise myself as an artist in the estimation of this gentle savage, I intensified the greens and

yellows, and made the blue of the sea bluer than nature, if that is possible, even with Messrs. Windsor and Newton's best ultramarine, or cobalt. At about ten I landed in the blazing heat, chastely arrayed in cotton trousers and the thinnest of shirts, and a hat, whose huge dimensions, I fear, rather alarm the children. Speaking of the children reminds me what funny little urchins they are; they trot about perfectly happy without a stitch of clothing on, their little stomachs enormously distended, and with their heads completely shaved, except for one long lock at the top or sides. How it is that their brains do not frizzle in the sun I know not, but suppose it is that a merciful Providence has bestowed skulls of extra thickness upon them.

The heat was intense; everybody says that the last few days have been hotter than any time during the summer. Some little way up the grove I was walking in I could no longer endure it; the trees keep off the little breeze that blows, and the heat is then unbearable; so I turned off on to the shore, through a tangle of low bushes that grow beneath the palms. On some of these bushes I found long trumpet-shaped flowers, with stamens and a ridiculously long pistil of a purple colour. The ways and tricks adopted by flowers to prevent self-fertilisation are most wonderful, and nowhere more so than here. I found the sand almost unbearably hot, as the sun had been up some hours, and as I had no shoes or stockings on I turned seawards, and waded in the shallow water that lies at ebb tide between the shore and the reef. This space is covered with coral *débris* turning gradually to sand, but the hard and pointed pieces that have not yet done hurt the feet terribly as one walks on them. The

water is almost unpleasantly hot to step into, yet in these little pools live all sorts of queer beasts, the most frequent of which is the black, slippery *béche-de-mer*, which I always try to avoid stepping on, they look so slug-like. This is the creature that the Chinese are so passionately fond of in soups; it is dried and is sent them from the Pacific Islands; I almost think that if our pigtailed brethren saw them in their natural condition they would be less attached to the delicacy.

Whilst I was slowly walking along, looking at the hundreds of things of interest in these little pools, I was joined by two young fishermen, who were not incommoded with an excess of clothing; their fine polished skin and grand muscular development make them very beautiful objects. In the charming way that one does in these islands, we all went off together, and they showed me how they catch their fish. Each is armed with a long spear, with a head formed of a bundle of four or five prongs eight or nine inches long; these they dart at the fish swimming about in the shallows; and as they are admirable shots and the fish numerous, though small, they often catch one. Let me look never so intently, the spear was thrown and the fish caught before I had even seen him. One of the men was an exceedingly nice young fellow, handsome too, and as he knew four or five words of English and I about as many of Tongan, we had quite a lengthy conversation by means of different methods of combination of the ten. Shortly after I had left him he came running up to me with a pretty little green crab on his spear which he had just caught; this he tore open and commenced to eat, and wanted me to have the other half. I was so overcome with this example of generosity that I forthwith produced my dinner, a queer

slabby sort of compound that our cook makes, into which he puts currants and calls a cake, and offered him half. I am sorry to say he took it, for I was very hungry afterwards, and had to wait till tea-time. My friend before he left me asked if I liked coco-nuts, and upon my saying that I did, he forthwith, to my surprise, calmly *walked up* an enormously tall palm and bowled several large ones down. It is a wonderful sight to see these fellows climb a palm: they clasp it with their arms, and putting the soles of their feet to the sides of the tree, they proceed to walk up it about as easily as we should go upstairs.

I must confess that I felt rather like the infant phenomenon in *Nicholas Nickleby*, when the savage presents her, in the ballet of the "Savage and the Maiden," with the luscious fruit that looked like a pickling cabbage. I, like her, did not know what to do with my gift. She smelt it, and danced to show her excessive joy and ravishment; I could not, for I do not dance fandangos or anything in the solo line. However, my dusky companion did know how to manage them; he stuck a stick upright in the ground, and holding the nut in both hands, he brought it down on the pointed end of the stick, and managed thus to tear off the thick and very tough green covering in two or three blows. The nut comes out quite white, and as the shell is thin, a few taps, discreetly given round the top of it, cause a piece to come clean away, leaving in your hands a natural cup full of delicious drink. I have become very fond of it, as it is clear, colourless, and *cold*; when fresh from the tree, the taste is rather sweet and coco-nutty, and it has an almost effervescing character.

After my fisher friends had left me I walked on another mile or so, finding the most beautiful creepers

that matted the trees together in one maze of glorious green; the leaves are heart-shaped, as large as this open book, and with very curious veination.

To-day I first saw a banana plantation: it is, I fully believe, one of the loveliest things on earth; I know nothing more beautiful than a patch of this grand plant growing beneath a grove of taller coco-palms. It is typically tropical. The green of their great leaves is superb, and, as they are translucent, when the sun shines through them they glow like emerald; they are generally moving, as the slightest breeze catches their great surface, and the lights and shadows play entrancingly upon them as they gently sway. The young leaves as they rise, curled within the centre of the plant, are of a wonderful purple colour, and seem to have a bloom upon them like that of a grape. The fruit hangs in great bunches on a curved thick stem, and often one bunch is as much as a man can carry. How prodigal Nature is of her gifts in these glorious islands! pure air, calm seas, and cloudless skies, cold an almost unknown thing, and food growing ready to your hand. People talk of the idleness of the Polynesian: I should think him an utter fool for doing work, for which there is not the slightest necessity, when he can be gloriously and superbly idle all day long without the awful prospect of having to suffer for it afterwards. Why should he want to be rich? Sufficient for the day is the food thereof; and if his *vala* wears out he can set his wife to make some *tappa*, and there he has another. I remember learning a hymn in my tender youth, in which I thanked the Lord I was born an English child: I think I could have done it with greater truth had I been born a Pacific Island one.

Some distance up the shore I turned down a side path, just a narrow track that I could manage to follow, through this beautiful banana plantation, fanning myself with a huge aroid leaf, and eating the golden fruit. I may as well say in this place that when "the Bush" is mentioned it does not mean low scrub, as I used to think, but thick forest of lofty trees. The term is general in the Colonies. The character of the bush is very different from that of New Zealand; ferns are not conspicuous, as they are there, although there are fine ones here; I saw several that looked identical with the New Zealand species, but I am told by a botanist that whenever you find in distant countries what you consider to be identical species, you can be quite sure that they are not. I think that it is the great mass of the creepers that gives its distinctly tropical appearance to the forest, even more than the palms or bananas. Here and there a plant of the Papaw grows, with its umbel of leaves at the top of its bare stem, and its cluster of fruit below, of which many are green and unripe, and two or three bright golden balls, ripe and tempting. It is a rather insipid fruit, sweet and melon-like in flavour, and the interior is full of slimy seeds.

I suppose I had gone inland about a mile, following the little path which seems sunk about eighteen inches deep in the level mass of verdure, when I reached a native house, built of sugar-cane and cocoa-palm leaves, and standing solitary in a little opening in the bush. Here I nodded to a man at the low door and spoke; he did not at all understand me, but beckoned to me to enter; so in I went, and sat fanning myself with my large leaf, for by this time I was very hot and the flies were most annoying. I never knew

what a plague flies can become until I arrived in Tonga; they are awful, and they have a pertinacity and obstinacy that are peculiarly their own. A civilised fly will, as a rule, take a hint and leave you after you have brushed him off, say two or three times, but here they return again and again, the scriptural seventy times seven. They are a peculiarly cold and clammy fly too, and settle on your eyes and nose in dozens, so as almost to prevent your doing anything with your hands save brushing them away. They rise with the sun, but most fortunately retire with him also, so one gets a little peace. No sooner was I seated on the floor of this house, which was quite without furniture, unless a few coarse mats on the floor can so be called, than my hosts, who appeared to be father and two sons of fourteen and fifteen, produced the food they were cooking and immediately gave me some. It was *taro*, the root of the *Caladium esculentum*, which is almost their staple food; it is not particularly nice, tasting like a very gummy and insipid potato. Of this they gave me the best pieces on a fresh leaf, serving it with a clean little wooden skewer. I could hardly manage to eat it as they gave me no salt, although I tried, out of politeness, to do so. They all three were immensely interested in my sketching, and recognised the coco-palm on my block with enthusiasm; on my honour they did, and I consider it showed very great intelligence on their part to enable them to do so. Not being accustomed as yet to the hospitality of the Friendly Islands, where the poorest of the poor gives of his best to a stranger, I was so impressed with their kindness as to give them the knife from my belt, a store of which and other treasures I have brought from New Zealand with me; whereupon the

family trio was so pleased that they showed me, each one, his whole set of thirty-two teeth in a grin expressive of his joy, astonishment, and delight. They, unlike the Maoris, and, I believe, many of the Polynesian islanders, have an expression for thanks, *Faka fetai*, which they use very frequently; this little fact says a very great deal for their superiority over many of the Pacific races.

Near this house I found some very beautiful plants suitable for decorative purposes at home, and gathered the seed of one with particularly fine foliage, the fleshy covering of which seed being placed in my trouser pockets smashed itself into a pulp, and stained me and my clothes one charming crimson. After striking the shore again I still advanced steadily, only turning aside to visit a *mangrove swamp*. At last I have been in a real mangrove swamp, that I have read of so many hundreds of times. I declare I gloried in the mud, and waded into it some way, disturbing many wild duck as I did so, to see if it really did smell as bad as it is reputed; for the sake of others who may be equally interested I will say that it *does*,—quite as bad. The whole place was very much what I had imagined it, and I seemed to recognise an old friend. Later on I joined a couple of these charming aborigines, and we had a good long walk together through the bush, finding in a patch of open ground some great plants of the crimson hybiscus. The glorious brilliancy of their superb flowers glowing in the sunshine is indescribable: they are more like flames of crimson fire upon the branches than mere flowers in the cool green leaves.

When we reached the end of the island we all sat down and rested on the sandy beach, and there I

drew their portraits before they prepared to leave for their home on another island not very far off; their canoes were awaiting them, pulled up high on to the sand. The Tongan idea of beauty is to have yellow hair, and as theirs is unfortunately absolutely black, they have recourse to art to gain the desired tint. By the aid of lime they destroy the dark colour, and one generally sees them with their stiff, crisp, wavy hair cut rather short, and standing erect all round the head in a sort of golden glory. One of these two men, not in the least abashed by my being there,—feeling doubtless, as he should do, that he was every bit as good as I,—produced a small packet of calcined coral, and, mixing this with water, plastered his head all over with the thick whitewash thus made. This is left to dry on the head, and remains there some time before it is washed off, having done its work. It is one of the commonest sights to see some one going about with his hair daubed all over in this manner. I finished my drawings, which were but in pencil, by the time they wanted to start, and they pushed off in their canoes and paddled into the sunshine to their island across the water, leaving me to philosophise in the shadow on the beach. Their canoes are formed of one tree trunk hollowed out, long and very narrow; they use but one paddle, and to keep the canoe steady they have a heavy outrigger which projects five or six feet beyond the side, and which is attached to it by light, strong branches. After resting some time in the shade of the trees I had to get up and trudge back again to Nukualofa; it is slow work marching along these beaches, there are so many charming things that one wants to pick up; I know I always return with my pockets crammed with rubbish. I arrived in the

little town very hungry and thoroughly tired out, and whilst waiting for the boat I undressed at the end of the little coral jetty, and, regardless of sharks, had a swim in the seas, keeping nevertheless a keen look-out for the black fin.

In the cool of the evening Gilbert, Stodart, and I went ashore to a *kava* party that took place in a lovely native house at the end of the grass road, which is half buried in flowering shrubs and trees, so that the night air was heavy with their perfumes. An old and deserted Tongan burial-place, surrounded with the usual sombre *casuarina* trees, was close by, and amongst the topmost branches silently flitted the large and dusky flying foxes. We entered the house and were warmly welcomed, and made to feel that our visit gave pleasure. Every one sits cross-legged on the floor, on which clean mats are spread, so we did too, only I fear not quite so easily as those to the manner born. There were a good many men present, all decorated with loose garlands of flowers round their necks, which they gave to us; we found them very fragrant both with the scented flowers and the fleshy fruit of the pandanus, which is here added to their garlands. Everybody smokes little cigarettes of very strong native tobacco leaf, a bit of which they dry over a hot ember, and wrap up in a piece of withered banana leaf that makes an excellent substitute for paper; each one at a party takes a puff or two, and hands the cigarette on to the next, so that sometimes one cigarette will go all round. Both men and women smoke, and it was one of the most obnoxious decrees passed a short time ago that forbade the women smoking. Of course this resolved itself into a question of so many dollars fine; but it has been repealed.

Kava, to drink which we had come ashore this evening, is without doubt one of the great institutions of the Pacific, where, I believe I am right in saying, its use is general. In some places it is called *kava*, others *ava*, and in Fiji it is *yaqona* (yangona); the methods of preparation vary greatly, but the drink is very much the same everywhere. Botanically it is known as *Piper methysticum*, but I can best describe it as the root of a species of pepper. The natives are in all places very much attached to it, and Europeans too when once the habit is acquired. This is the way it was made. A young man brings into the house a large and heavy stone, slightly hollowed at the top, and a round and much smaller one, used as a beater; these stones are brought from a great distance; I believe the volcano of Tofoa is generally resorted to for them, as Tongatabu produces nothing of the kind. On the large stone the boy places the root, which is dried and looks something like very large horse radish, and commences to pound solemnly away at it, and continues to do so for some time until enough is ready for a bowl. Meanwhile, the noise of the stones has attracted several more people to the house, who, unbidden, come in and sit down; any one can come in to a *kava* brew. Enough of the root being thus prepared and the stones removed, a large wooden bowl is brought and placed in front of the artist; the bowl is one used for this purpose only, and is very fine, being made out of one solid block and supported on four little legs; a large one will hold many gallons. An old and handsome *kava* bowl is much prized by the Tongans; it is always carefully wiped after use, and hung up. After very long service a bluish, almost iridescent, glaze forms on the sides and bottoms of these bowls, and

in this the chief beauty is considered to lie. The pounded root is put in the bowl and a cocoa-nut shell full of water is poured on to it; with his hands the boy proceeds to squeeze the pounded root to a pulp, grinding away with his palms to express all the essence; this he does constantly, another man slowly adding more and more water till the bowl is filled almost to overflowing. When it is considered to be sufficiently mixed the operator takes a bundle of fibrous stuff called *fou*, which is obtained from the pandanus, to act as a sieve, and strains all the liquid by sinking the *fou* into the bowl, stretching it from side to side, and slowly drawing it through the contents. This last process takes some time, as great care is necessary lest he should spill any, and also because he wrings out every spot of liquid from it each time of straining. When the *fou* is wrung he shakes all the little pieces of woody matter extracted on to a mat placed at his side for that purpose. The whole process, which almost partakes of the character of a ceremony, being ended with queer wavings and passings of the *fou*, and clapping the hands together, the operator dips the fibrous bundle into the bowl; it takes up about half a pint or so, and is then wrung into a cup, formed of a half coco-nut shell, and handed to you. I was served first, and must confess that it was not without difficulty that I drank it, so unpleasantly like soap-suds I found it; but I finished it off as though I appreciated it, for had I not upon me the eyes of all those garlanded old men, who doubtless would have laughed heartily had I appeared not to like it. I even took another cup of it in the course of the evening, in my endeavour to acquire a taste for this beverage, and not without ultimate success, for by the time I left

the island I was almost as fond of it as any old Polynesian amongst them.

[I find that Miss Bird, in her most delightful book, *Six Months in the Sandwich Islands* (which gives, I think, a better picture of the Pacific Island scenery and Pacific Island feeling than any book I ever read), gives a very over-coloured description of the evils attendant on the use of *kava*, and raves against it in very impassioned language. I think she is greatly mistaken; unless, indeed, the *kava* drinking is carried to a very much greater extent in the Sandwich Islands than in any part of the Pacific I have been in; and certainly the *kava* of old days, with its ceremonial refinements, is far better than the orange rum drinking of a later date, with all its attendant wild orgies. It is a slight intoxicant, and is narcotic also I believe, but it attacks different people differently; it flies to the arms of some and to the legs of others, leaving their heads clear, but utterly useless as to their limbs,—a charming sort of sensation I should think, so queerly comic. Miss Bird says that she saw a *kava* drinking once, and the following is a sentence from her account of it. "Heads thrown back, lips parted with a feeble sensual smile, eyes hazy and unfocused, arms folded on the breast, and the mental faculties numbed and sliding out of reach." I can assure you, Miss Bird, should you ever honour me by reading this, that although I saw and joined in dozens and dozens of *kava* drinkings, I never saw anything of the kind. The brightness of face and intellect was always the same amongst the natives after the drinking as before, and I myself never felt any "faculties numbed." I have not been myself in any part where the missionaries have been foolish enough, though some people may not

credit that, to abolish it; but it seems perfectly true that wherever *kava* is still drunk, there rum is absent.]

To-night I took everything just as it came, *kava* and then cigarettes, going from one to another; and then *kava* again, and enjoyed it—enjoyed it because of the very savageness of the entertainment. I should make a splendid Polynesian. What climate so good, what dress so cool and convenient as a *vala*, what fruits so delicious, and what girls so beautiful as theirs? But steady: I fear the usual action of the *kava* is being subverted, and it is not flying strictly to my *feet*. We left the hospitable house at eleven, an unearthly hour for Tonga, and the old men were still round the bowl. We passed along the silent road, and not a soul was stirring, and when we reached our boat we found it high and dry; the tide had gone out; it was only after a long time and great exertion that we could get her off into the little channel that is out in the coral, which is just deep enough to float a boat at low tide. Here I now am on board, tired to death, and scribbling away for fear that I should forget much. I have more to say, of how I have seen shells becoming fossilised, and how part of this island is slowly rising, and all sort of things, but I can write no longer.

Another day, shortly after I arrived in Tonga, I passed one of the very jolliest times I ever had in my life, and it has been spent amongst a lot of real savages. First thing after getting ashore, at about nine, I went to a native house to see a woman that I knew made *tappa;* she smiled brightly to me as I went in, and pointed hospitably to a mat. The making of *gnatoo* is one of the chief occupations of the Tongan women, and in it their chief wealth consisted before the intro-

duction of the pernicious dollar. It is a sort of cloth made from the inner bark of the native white mulberry, in the following manner, and is used for a great many purposes by the Tongans. Both men and women make their *valas* of it, and their blankets, and curtains. The slender stems of the tree are left lying for some time in the sun after being cut, which enables the women to strip off the inner and outer bark together, which are then soaked in water and carefully scraped to remove the outer bark, which is useless. The white inside bark is then rolled up, and again soaked for some time in water, and is placed upon the squared side of a felled coco-palm, which is raised an inch or so at either end that it may vibrate, and the women sitting before the trunk begin to beat away upon it with a heavy iron-wood mallet. This process is called *too-too*, and a very expressive name it is. The mallets are four-sided, three of which are grooved, and the fourth quite smooth and plain for the finishing of the process. They manage to beat out each ribbon of bark into a good broad strip of cloth, the beating being done with either hand, and the other one moving the cloth about so that each part is thoroughly beaten; the long narrow pieces are joined with arrowroot, and then beaten together, so that very large pieces of the cloth are sometimes made. I have seen some pieces being painted that are quite thirty yards long by twenty broad. After beating away at this for some time (say a week or two—What is time to a Polynesian?) they stain it, and paint it with odd patterns very effectively. The way this is done is ingenious: On to a large piece of bark they fasten thin round twigs in the desired pattern, all sorts of odd loops and figures; this they place under the *tappa*, as the *gnatoo* is called

before painting, and pressing it they get the patterns slightly marked upon the material; this is afterwards painted in with darker dies. I am told that the finished *gnatoo* is baked for a time in their ovens, which fixes the colour. The sound of the *too-too* is heard all about the place, especially in the morning and evening, and its pleasantly sonorous noise is one of the most characteristic in the islands. Sometimes several women will be working away at one log of wood, and, not satisfied with the noise they themselves make, they get boys to come and hammer away at the end of the trunk and beat time to their working.

After staying some time in the cool house of my native friend, and having the whole process of the manufacture explained to me, I walked up the beach to the house of Mr. Symonds, the British vice-consul, whom I found during the whole of my stay in Tonga a most intelligent and pleasant companion, and who showed me the greatest and most unvarying kindness. His has been a singularly lucky appointment. I think it would be difficult to find any one so well suited to the post; he is attached to the natives, and enters into their doings and modes of thought with the keenest interest, and they, perceiving this, return a strong affection for him. An appointment such as this, when it is a gentleman, and a disinterested one, that holds it, must be of benefit to the native, and redound to our credit as a nation.

On my way to Mr. Symonds's house I passed the unsightly "palace" of the king, and saw that really historic old man on the verandah; he is very tall, over six feet, and must have been strikingly handsome when younger. He is now both old and corpulent, but still has a majestic bearing. The queen, whom I

have seen once or twice, is so fat that she moves about with great difficulty. I did not go with Mr. Symonds to pay my respects to the old man, as they have lately had a slight disagreement about something, and it would not be the correct thing for the consul to go under the circumstances, some nicety of Tongan etiquette that I don't quite understand standing in the way. The consul's house is charming—a native one, but very large and handsome; it is said to be the finest example of a native house in the Southern Seas. It is one very large room, divided by partitions, hung with handsomely painted *gnatoo*, into three; the walls are decorated with a fine collection of clubs and weapons; the roof is very high, rounded and supported by huge massive pillars of wood; the floor is covered with mats, and the walls with reed-work; whilst all the beams are corded together with beautiful sinnet plaiting. The roof is the chief glory of the house—all fastened without a single nail; the lateral rafters are beautifully polished bamboo poles, and it is capable of being removed entire and placed upon another building.

Mr. Symonds has been telling me a great deal about the wonderful trilithon at Moa which has puzzled so many travellers. It is an erection of three huge stones, of a character quite unlike any found upon the island; indeed it is said that the nearest place where similar ones are found is Wallis Island, some hundreds of miles away; the truth of this statement I cannot of course vouch for. A missionary who was in Tonga many years ago writes that the son of *Tui Tonga* himself—and he should know if anybody does—told him that many many years ago, when they had very much larger canoes in Tonga, these

stones were brought from Wallis Island. This seems corroborative. They are very huge, and look very similar to those that occur at Stonehenge and so many parts of the world, the chief difference being that these are mortised into one another. The trilithon stands about 16 feet high, 20 long, and 10 or 12 wide—stones of huge proportions for a savage race to have worked and placed in position. It remains an unguessed riddle to-day. Who will solve it? There are in one or two parts of the Pacific somewhat similar remains; for instance, the wonderful stone terraces, houses, and gigantic figures on Easter Island, of whose building and carving the present inhabitants have not even a legend. Some bygone race of men has fashioned them, thinking themselves perhaps more lasting than their works, and yet they have vanished as utterly as a mist from a mountain-side, and only these few remains are left to tell us that they ever existed. Here is a splendid opportunity for moralising! I think well of my self-restraint in not utilising such a chance. It seems that until quite recently the ceremonies at the installation of a new *Tui Tonga*, or spiritual chief of Tonga, have always taken place at Moa, which shows that the stones have been held in great veneration; but now that the *Tui Tonga* exists only as a name, his place and power having been usurped by the temporal chief, they are visited no longer. Perhaps, to make my remarks comprehensible, it would be as well to tell a little about the former government of these islands, although I do it rather unwillingly, as the subject is a difficult one, and I am naturally not very well up in it.

Tonga, it seems, in former times was governed, as was Japan, by two powers, the spiritual and temporal,

of which the spiritual chief, *Tui Tonga* (chief of Tonga), was nominally the greatest noble and chief in the islands, and in point of position far before the king, who really held the chief power. Both of these offices were hereditary, and both the holders of them claimed descent from the gods. For about sixty years the *Tui Tonga* has lost all real power, the king having usurped it entirely, but still the title exists, and still the king cannot enter *Tui Tonga's* house uninvited or stand before him, sitting in Tonga being as usual a sign of respect as standing is with us. The very name of Tonga-tabu is gained from the fact that it was the residence of the *Tui Tonga*, and hence became *Tonga-tabu* or Sacred Tonga. The account that the people themselves gave Mariner, who lived amongst them as one of themselves for some years at the beginning of the century, of the creation, or rather the upraising of their islands, is curious. He says that one day he and Finou were walking at random across the island, when they "arrived near a rock noted by the natives as being (in their estimation) the immediate cause of the origin of all the Tonga Islands. It happened once (before these islands were in existence) that one of their gods, Tangaloa, went out fishing with a line and hook; it chanced, however, that the hook got fixed in a rock at the bottom of the sea, and in consequence of the god pulling in his line, he drew up all the Tonga Islands, which they say would have formed one great land; but the line accidentally breaking, the act was incomplete and matters were left as they now are. They show a hole in the rock about two feet in diameter, which quite perforates it, and in which Tangaloa's hook got fixed. It is, moreover, said that *Tui Tonga* (the divine chief) had till a few years this very

hook in his possession, which had been handed down to him by his forefathers; but unfortunately his house catching fire, the basket in which the hook was kept got burned with its contents." Mariner asked the size of the hook and its kind, and was told that it was made of tortoise-shell and the bone of a whale, and that in length it was about seven inches. He objected and said that such a hook was not strong enough, but was told that it was a god's hook and could not break. He rather unkindly asked them how it was, then, that the line gave way, as that also was a god's property. This rather puzzled *Tui Tonga* himself, whom he asked, and he had to say he did not know.

This and much more that was exceedingly interesting of the country, its people, and manners, as told to me by the consul on the spot, would not, I fear, be entertaining as told by me over again, so I refrain from doing so, and tell instead of the charming time I spent afterwards with a party of natives. It was still quite early when I left the consulate, and turning in the opposite direction to my usual walk past the Catholic Mission, I started off up the beach; there is the same broad strip of crumbling coral bounded seawards by the reef, then a strip of that golden sand I cannot understand, then the coco-palms, which fringe every shore, and behind them the tropic forest. The palms are much taller here than at the other end of the island, but they have not nearly such a good crop of nuts; hurricanes for a season or two have torn the trees so much here that the production of copra has been very small. (Copra is the dried kernel of the coco-nut, which is exported to England or America for the purpose of oil-making.) After I had strolled on for a mile or so I came to a broad lagoon that ran

some way inland; it looks almost like a river flowing out to the sea, but it is sea water that at high tide floods the mangrove swamps, and then drains out again at ebb. Here I began to take my clothes off, not knowing how deep it might be, when up comes a party of natives, eight or nine in number, all men and boys, and as jolly as possible; they showed me how deep it was by marking on my leg how high the water would come. One very handsome young fellow, whose name I afterwards learnt was Kauhiva, marched into the water and signed to me to follow, and taking my hand led me across by the most shallow places in a manner that I somehow felt was apostolic. When we were across they signified their desire that I should accompany them, and I, nothing loath, did so, thinking that they perhaps were on the way to their village some way up the coast. I felt the more sure of this because one of the party was carrying a delightful little pig in a coco-nut leaf basket, where he reposed in happy ignorance of his fate. We walked on amicably for about a couple of miles without very much conversation, for as yet I was but new to this sort of thing, and did not know very much Tongan; but I soon felt so much *en rapport* with them that by the time we had arrived at a beautiful point of land, quite out of sight of Nukualofa, and sat down on the sand in the shade of the yellow-blossomed hybiscus trees, I felt quite at my ease with them—nay more, I felt quite one of them. On a hint from Kauhiva one of the number ascended a tall coco-palm, and very primitive and charming it looked, as he had discarded his *tappa*, and wore a queer costume made of a large banana leaf, which hung in a deep fringe of green from his waist, and looked well against his clear rich skin. He,

when at the top, sang out to know how many we wanted. "*Ooloo,*" shouted Kauhiva, and down came ten great nuts and a heap of branches, whose use I could not see. Kauhiva immediately opened a nut, and handed one to me first as guest, and to the others afterwards.

It is really astonishing how we manage to communicate with one another considering my very little Tongan, but I try to make my mind as much like what I suppose theirs to be, and then resort to pantomime, and it is wonderful how much I can tell them, and how much I can understand of what they tell me. The Tongans strike me as being exceedingly quick-witted as well as good looking; their bright expression and intelligent smile give this impression; their head too is very well shaped. Have I spoken before of the fineness and smoothness of their skin? It is just like satin, so soft and pleasant, the men's as well as the women's, for they, after their frequent baths, rub themselves all over with a little fragrant oil that prevents any roughness.

No sooner were the branches of the palm that I spoke of on the ground than they were taken by some of the party, and, splitting them down the centre rib, they rapidly began to weave rough mats out of the lateral leaves. These it appeared were for lining the oven, which some of the others had dug and scraped out with a queer sort of wooden paddle-shaped spade, a little way back in the bush. Two boys had been told off as cooks, and before I knew what they were doing I saw the little pig dead, and being washed in a small pool left by the tide in the rocks. Then came the preparation of the oven, which is simply a hole dug in the ground, in which a fire is burnt, though some-

times it is lined with stones. The food is placed in this, wrapped up in leaves and mats, and then covered over with branches, on to which the earth is heaped, so that no steam or heat escapes. It is said in some places that they make the women or boys sit on the top to keep the heat well in, they having to move about from side to side as their position becomes uncomfortably warm.

But before we could get our oven we had to get our fire, and that was done in the delightful savage way of rubbing two sticks together. I did begin to feel very Crusoeish when this commenced. In my early youth I had heard or read of this method of procuring fire, and remember fumbling for a long time on several occasions with divers pieces of timber, and declaring that the thing was impossible, because I could not even get them warm. I did not know the right method then, which *seems* simple enough. Two pieces of wood are selected, one a long piece, rather soft and dry, which is flattened at the top and a slight groove cut in it; the other is a short hard piece, pointed at one end. The larger piece is steadied by a second man, or by the operator sitting on one end of it himself, and the smaller piece is held by both hands, the wood resting between the thumbs and forefingers, the other fingers on the top of it, so that great pressure can be put on to it, and nearly all the weight of the body. Kauhiva was the operator; taking the pointed piece in his hands, he slowly began to rub it up and down the groove cut in the larger one. This motion scrapes away a fine powder from the sides and bottom of the groove which lies at the end of it, and the speed of the rubbing gradually increases till it is very quick indeed, when you see a little smoke arise from the tinder, and at last a tiny

spark which smoulders slowly in the little heap of wood powder formed by the friction. The rubbing then ceases, and, blowing gently, they manage to set fire to a small piece of fine dry *gnatoo* torn from their *vala* or their turban. They managed very quickly to get a light, and soon the wood in the oven was blazing.

Thinking that I was interested in the fire-making, as indeed I was, Kauhiva, with a smile, signed to me to try to do it, doing it once more himself to show me how. It looked so simple that I rolled up my shirt sleeves and set to work, and found, after a moment or two, that he had given me the wrong end of the stick. I tried again, and although I rubbed harder and harder and faster and faster I could not get beyond a little smoke; I made myself intensely hot, and once when I had, as I thought, very nearly succeeded, a great big drop of perspiration rolled down my nose and extinguished my hopes and the fire together. The mirth of the party was great when they saw that I could not manage the trick, but it was such honest boylike laughter, that I would rather have failed than not hear it. However, I regained my position by exhibiting the contents of my pockets, at which they greatly marvelled, my knife, etc., being much admired and envied. A regular British way of asserting myself, was it not? My finger ring was especially admired, as it is in the form of a snake, and the brightness of its little diamond eyes they cannot at all understand. They would call it *ika*, a fish, as they have no such things as serpents here, and they were all most anxious to be allowed to wear it, and admired their hands with it on in the most childlike manner. It and all my other belongings were returned to me without any one evincing a desire to keep them.

In an hour or so, when we were all rested, some one of them suggested jumping, and of course I joined, and although no great athlete I beat them all at high jump. Was not I proud, too? I did it with an air, though, as if this were nothing to what I could do sometimes—just for the sake of keeping up the idea of the superiority of the *Papalagi* strength and agility. Two of the men held a wooden spear over which we jumped. I must say that these were the queerest athletic sports I ever joined in, and also that I enjoyed them more than any I was ever at before; I was glad that no one suggested races, for I fear I should have been quite out of the running on the loose sand of the shore. After a time, tiring of sports, we all sat down, and they commenced a very interesting game, which they called *liagui;* it looked to me very much like the Italian *mora.* Two or four players take part in the game; if four play, two are partners. Opponents face each other, and make signs simultaneously with the hands. Three signs are made with a very sudden jerk of the forearm; either the hand is presented clenched, or open, or with the forefinger extended. The one who is counting makes the sign, and if his opponent happens to make the same it becomes his turn to score. Five is up, and if a man can make any sign five times without his opponent making the same once, he scores one. It is then the other's turn to play, and whoever first wins five marks is the gainer. But this is not all: there is a very complicated part of the game I never could quite understand, by which a man may be made to lose some of his marks if he cannot remember the order the signs have been made in, and give a reason for each sign in the proper technical language of the game. They play this with the utmost eagerness and intense interest, and

so swift are their movements that it is impossible for an unaccustomed eye to follow them at all.

The scene was a strange one, and I could hardly help smiling at myself being seated, savage like, on the sand in the midst of seven or eight other savages, if one can so call these charming people. In front of us lay the lagoon, so perfectly calm that the many little coral islets that seemed to float on its surface were, with their graceful palms and vegetation, reflected with every detail in its clear waters; outside of this the surf, beating on the reef with its regular rise and fall, and the troubled waters of the open ocean. The waters of the lagoon, reflecting the tones of the sky, were bright and turquoise coloured, whilst the outside sea shone deep like sapphire. Behind us was the solemn forest, and overhead the green hybiscus boughs which grow beneath the loftier palms. The day has been gloriously hot; the very air, that comes in languid breaths, is perfumed with the scent of flowers so heavily that that alone seems excuse enough for its laziness; there is nothing to do but lie on the soft sand fanning one's self with a branch of green leaves, and watch these pleasant fellows play. There is a picture of indolence; can one imagine anything more perfect? For all the time one had a happy consciousness of roast-pig cooking somewhere out of sight in the background; the thought of crisp crackling, and succulent pork giving that last touch of future content that was wanting.

Amongst other things I had in my pocket was a tiny volume of Shakespeare, with which these fellows were much interested. I often, just at first, carried one of these little books, meaning to read when out walking, but always failed to do so because of the beauty and

interest that were everywhere around me. Starting out most mornings alone,—for all the other men of the schooner were busy with the trading business of the voyage,—I used to think I was going to be dull, but I never yet have succeeded in being so. Well, these gentlemen expressed a wish that I should read to them, and I, thinking that as yet I had done little towards the amusement of the party, immediately did so with due dramatic action and expression—laughing aloud at the absurdity of the situation. I read them a scene from *As You Like It;* and, oh Lord, a thing I never did in my life before, I sang them a song! So little did these poor misguided savages understand music that they said it was truly admirable and *lelei* generally.

At about four, or perhaps five, for I don't wear a watch, and am always in a happy state of ignorance of the time—time being made for slaves and not for free and happy Polynesians—the women of the party joined us, such pretty pleasant women, who had started out before the men, and had been fishing on the reef all morning; whilst we, the lords of creation, had been amusing ourselves with Shakespeare and athletics. They opened their baskets of spoil, and the contents were eaten at once, raw fish being considered a great delicacy in Tonga. They offered me great lumps of cuttlefish, out of which the sepia ran, and little half dead fish whose heads they bit off; but I politely declined these kindly-offered dainties, which I could not manage, but which they ate voraciously. When the oven was ready and the *kai* cooked, we all moved a little way into the bush to be nearer to it, and there sat down crosslegged; a place having been strewn with leaves for me to sit on, and a plate of woven coco-nut leaf placed in front. Oh what a gush of delicious

roast-porky smell rushed up from the ground when the earth was moved and the branches from the top of the oven! First out came baked yam and green bananas, then, wrapped in one or two mats, the little pig, which, when uncovered, was found to be of the most enchanting brownness. Kauhiva cut him up with the knife from my belt, and placed about half of it on my green plate, with yam and banana enough for six. I tore pieces off with my fingers, as much as I wanted, and handed him the remainder back again, intimating that what I had was quite enough. It really was most excellent—the only thing it wanted was salt; and as they seldom use this, I had a shell full of sea water brought, into which I dipped my meat before eating it. The way the others were served was really delightful, Kauhiva cut and pulled off great pieces of meat, and threw them with great precision to the others; the yam they squeeze up in their hands into a ball, and these and bananas were flying about from one to another in the most promiscuous manner. When Kauhiva had taken a bite from a piece and found it extra good he handed me the rest of it, which I would take with a polite "*faka fetai*," "thank you." No one could have objected, he was such a fine clean fellow, with such good white teeth; besides it would have been barbarous to have refused his kindness; and a very pretty girl next whom I sat, who was laughing and ogling and talking the whole time, getting as her share the skull of the pig, pressed upon me the brains, which she scooped out with one finger. The pig being finished, they had a second course of raw fish, and octopus which had been cooking for some time in the ashes; and then all the food having vanished—for they never drink during a meal—we had some delicious

coco-nuts, cool and fresh from the trees. They led me to a little pool in the coral, where we all washed our hands and faces, a somewhat necessary proceeding after such a banquet. I call this true hospitality, for they expected nothing from me in return. I gave Kauhiva the knife he had used for carving, and he instantly began to decorate the wooden handle of it very queerly. We all walked home together in the cool of the evening, they leaving me and going inland with many an "*ofa, ofa*," "Love, farewell," about a mile from where the schooner is lying.

All the time that I am enjoying myself on shore, the business of the schooner is going on in a quiet sort of way, with no particular hurry or excitement. Gilbert goes to the traders and sometimes comes back at night with a bag full of silver dollars, so I suppose that trade is good just now. We at least have a good deal, but that is perhaps because we are one of the earliest boats on the ground, and no other expected for some little time. In the mornings the boat is loaded with goods, potatoes, flour, biscuits, and so on; and Jim and Charley, the crew, and Johnny, the boy, say it is very hard work, but they don't look as though they found it so. We three—Gilbert, Stodart, and I—went ashore with the first boat-load this morning soon after sunrise, while yet the air was cool; we had all been sleeping on deck, and just rolled as we were into the boat, and had a most glorious swim from the shore. I had brought a small bundle to land with me—a very small bundle—and with its contents made myself as beautiful as possible and proceeded to the consulate, where I breakfasted upon yams and fish, speared this very morning by the consul's boys, and tiny oysters collected by the same, which were in lovely pearly shells, and which were

so exceedingly æsthetic that their very beards were peacock blue.

The consul has adopted, according to the Tongan custom, a whole family of father and mother and several children, whose food, clothing, and every necessary he finds, and some small payment in money too, I believe; they in return serve him faithfully and well, and have become greatly attached to him. During breakfast I learnt a good deal of this curious custom of adoption. The origin of it is lost in the mist of ages; the Tongans themselves know no reason for it; they say "it has always been so." A woman in Tonga will adopt children of another woman directly they are born, and sometimes grown-up young persons, whom she will look after in every respect as though they were her own. It is not at all necessary that their parents should be dead; the real mother of an adopted child may be living quite near to the mother by adoption, and the child regards his second parent quite in the same light as his natural one. Sometimes, for reasons best known to himself, a young man with his own mother living, and for the matter of that a wife too, takes it into his head that he should like an adopted mother, and straightway finds one.

The garden of the consulate is very beautiful, blooming always with a wealth of flowers; crotons, with their quaint bright variegated leaves, grow here superbly; then there are gardenias, hybiscus, the sweet white eucharis; poinsettias, with their crest of brilliant scarlet; large daturas, that fill the air with incense; and graceful palms of all sorts, with the coco-palm above all, and best. Over the rough and artistic bamboo fence trails a of gorgeous creepers, crimson and gold; and here clitoria, or white jasmine, with whose

perfume the languid air is redolent. There is, too, one little rosebush, whose every fragile blossom the consul values more than thousands of the bright pomegranate flowers or cannas that are so beautiful but so common. In several places in the garden grows a bush with more glorious foliage than I ever saw before, the *Acalypha*. It comes from New Guinea, and the consul is trying to introduce it into this island; its leaves are very large and of a beautiful shape, and in colour of every possible shade of pink and crimson, bronze and gold, shading from one to another in most exquisite gradation.

By the time we had finished examining the wonders of the garden our horses were ready for us, both of them far above the island average, and we, in fashionable riding costume of white trousers and the thinnest of white shirts and broad brimmed hats of marvellous appearance, were mounted and away. In all my life I never enjoyed a ride so much; the horses were fresh, and, as Mr. Symonds told me, tropical riding consisted in taking as much out of your horse as possible and then turning him loose for a week's rest, gallop we did. The horses seemed to know what was wanted, as they insisted upon going almost all the way at racing speed; the roads were turfy and good, and the day was magnificently fine, so that it was a sort of glorious intoxication (oh, ye Bands of Hope!) to rush madly along the tree-bordered road. On either side lines of coco-palms grow, and beneath them all sorts of plants and flowers that I knew quite well by name, but which I now saw for the first time; where the ground is cultivated grow bright patches of sugar-cane, bananas, or maize; and where it is untouched, all kinds of beauteous things of every shade of green and every

form of growth. Sometimes great masses of bright scarlet would show where whole beds of canna grew, the large leaves contrasting finely with the brilliant flower; then there is the plant from which arrowroot is made; and in places all along the roadside a plant so beautiful, with its leaves and quaint berries, that I could hardly believe it was one that I have long owed a grudge to, the castor-oil bush. But of all the well-known trees I undoubtedly think the bread-fruit the finest—its green is so rich, and its leaves so glossy and bold. It grows to a good height, and its ramification is fine; the large leaves are deeply and symmetrically indented, and the fruit, which grows at the end of the branchlets from a nest of young leaves, grows upwards when it is young, but turns and becomes pendent when older, and is of an exquisite emerald green, which shines amidst the darker foliage. But it is not only the beauty of the individual plants so much that strikes one, as the wonderful wealth of growth everywhere; no spare inch of ground is to be found, and one thing strives with another for every breath of air or ray of sunshine, so that the vegetation is matted and grown together into one superb mass of greenery. Dragon-flies of bright hues, and beautiful butterflies and insects, fly about, fitting ambassadors to bear the royal loves of the flowers.

Some way out of Nukualofa we came upon quite a large village, built in the shade of some grand old trees, which has doubtless been a village from time immemorial, one generation succeeding another, without struggle for existence, in a happy Arcadian manner, except in time of war, when the excitement but gave a fresh zest to life, until the white man came, and things were changed. Children were playing about,

and some girls bathing in a shady pool, laughing at us as we went by, and calling their *ofas* after us. Passing through the village we came upon two ladies, one of whom was up a tall tree gathering the fruit, the *mtava*, which she threw to her companion standing below. This latter, pretending to be very frightened at the horses, came up of her own accord and gave us some of the fruit, which is about the size of a Tangierine orange, and is sweetish, gelatinous, clear, and rather insipid in taste, and is covered with a thin green husk which peels off easily. The character of the bush had changed now that we were inland; there were fewer coco-palms, and the trees were finer than near the coast; at intervals, all along the broad path, there is a lime tree, with its bright fruit gleaming amongst the leaves; or candle-nut trees, whose fruit is burnt here at night for light, with their lighter green showing against the darker bush around them, and perhaps hanging from its boughs festoons of the passion-flower, which bears the strange deliciously-scented fruit. Over the lower bush grow great masses of convolvulus of different kinds and colours, and the loftier trees are draped with great large-leaved creepers. Frequent, too, are bushes of datura, with great white trumpet blossoms, a foot or more in length, which greet you as you pass with their perfumed breath; growing with them are large hybiscus bushes, of which I cannot help writing again, so beautiful seem to me their great flowers of pure rich crimson. If it is a beautiful plant, even when in exile and living cramped in our conservatories at home, think what it must be when growing free in the great hothouse of the tropics, with its branches ablaze with its flowers in the ardent sunshine.

Some miles out we called at the house of a little trader, where for a time we rested and had cool drinks, compounded of coco-nuts and limes, which latter I was squeezing tightly in a pair of lemon squeezers our host had provided, when he exclaimed in an agonised voice, "For heaven's sake don't squeeze like that; you can have a thousand lemons, and you might break my squeezers, which are the only pair in Tonga." Mounting again we rode to a long avenue of shaddocks that lies about eight miles out of Nukualofa, which was the object of our expedition. We arrived when the sun had begun his westering, and it was a glorious sight to see the long vistas of sombre green that the trees form, arching the road with shade, through which an open space at the end was all yellow and light in the blaze of the sun. The foliage is very dense, and consists of dark glossy leaves, from which the huge fruit hangs in great golden balls; on the ground, too, they lie in rich profusion, untouched and uncared for. The effect was intensely tropical, such a wealth of vegetation and prodigality of fructification; the sunlight falling here and there through the branches made flecks of intense brightness on the turf. I saw to-day, too, for the first time, the bamboo growing wild, a graceful gracious plant, whose beautiful grassy leaves were almost motionless in the still air of this inner forest. We tethered our horses with the rope that each horseman carries always, and rambled some little distance from the path, having to force a passage through the tangled growth; I, every moment, finding some fresh thing of beauty or of interest. Like Master Tommy in *Masterman Ready*, I burnt my mouth with the capsicum pods which grow red and tempting on a little creeping sort of plant. Like that ingenuous youth

I am of a somewhat curious nature, and like to put the different things I see to the test of taste as well as to other methods of examination, and frequently get my tongue bitten for my pains. We found the wild *kava* plant, which is very poisonous; the drink has to be made in a special way to render it innocuous. The *kava* generally used is a cultivated species, grown and tended with the greatest care by the natives, as their chief luxury is likely to be.

We had been out some hours and were on our way home when it began to rain; we were in dense bush on a native path, just wide enough for one man to walk along between the high rank weeds and vegetation on either side; the horses much object to these narrow paths, as the feet of the rider constantly catch in the tall weeds and act as a drag; it is very tiring to the ankles of the rider too. It is strange to feel the rain quite warm as it falls from the clouds; we were instantly wet through to the skin in the steady tropic downpour, but we rode on, galloping almost all the way in a shower of mud that we kicked up from the peaty soil. We reached home in a terrible state of wet and dirt, but happy and hungry. I had a bath in a little well of brackish water that filters through the sand from the sea, and, being dressed in some of the consul's clothes, was quite ready for the dinner that was ready for us. We had a regular old rooster for dinner, which cut up as tender as a chicken, as it had been cooked in the leaves of a wonderful and mysterious tree that grows in the garden. If any tough old patriarch is wrapped up in these leaves, and either roasted or boiled, the tender result is the same. Mr. Symonds had forgotten the name of it.

Gilbert had joined us at dinner, coming in tired

and disgusted with one of the German traders, who here seem to do most of the business; and together we walked down to the landing-place to see if the boat were there, but no sign of one was to be seen. "Cooee, cooee, *Caledonia* ahoy!" shouted I into the quiet night; the place was so full of silence that I hardly liked to break it. "*Caledonia* ahoy!"—at last we heard the splash of oars, and the boat came into the starlight from the other side of the schooner, sculled to the end of the coral jetty by the sleepy Johnny, and glad were we. Think how pleasant it is writing now in the stuffy little cabin, late at night, with the thermometer at 85°. I am gradually getting into a state of greater and greater undress as I write, preparatory to going on deck for the night. I have become quite accustomed to sleeping on the deck, and the planks seem to have lost their hardness, or else I am so tired o' nights that I sleep sound wherever I fling myself down.

CHAPTER III.

TONGATABU—(*continued*).

ONE day I determined that I would try to get to see the wonderful stones at Moa, that I wrote of before, so I went early in the morning to the consulate to find out whether I could ride the distance in one day, and learnt that I should not be able to both go and return in the time, but that if I could find a man I could do the journey much quicker in a canoe. No man could I find, so I had most reluctantly to give up my intention of visiting these monuments, which are amongst the greatest wonders of Polynesia. I would have ridden and taken a couple of days for the journey but that the skipper said we should in all probability leave Tongatabu next day, and I did not want to be left behind. As it happened, we did not leave for several days, each of which was rendered useless for a distant expedition by the uncertainty of the schooner's stay here. Being disappointed in not seeing these prehistoric stones, I went off with Gilbert and Stodart to Friday's island, he sending his boat, rowed by his four boys, across for us. These were all young men of fine physique and good looks, one of them being as fine a looking man as I ever saw; they were prisoners, not having paid the heavy fine laid upon them for the venial offence for which they were being punished, and had been let out to Friday until they were considered

to have worked off the amount. One frequently sees the best looking of both sexes in *bulianga*, as prison is called, and it is their mutual admiration of beauty that generally brings them there. Having a fellow-feeling with these men, which they are very quick to observe, we became very friendly, and being unable to express my sympathy in words, I did my best with pantomine, looks, and ship biscuits, of which latter they made but short work. They pulled us over to the island in about half an hour; the exquisite colours of the corals and sea-growth at the bottom being more beautiful than I can describe; the clearness of the water is such as to show every branch and waving film.

Friday's home is a lovely little island—one mass of trees and palms; it only rises a few feet above the sea, its golden shore gradually rising to where, just above high-water mark, the green of vegetation commences with the fringe of sea convolvulus that binds the sand together. Directly our keel struck the bottom, out jumped some of these young Goliaths and carried us ashore, that we might not wet our shoes; the one who took me carrying my six feet and putting me lightly down on the sand as though I had been a child. Friday met us on the shore, pleasant looking, and in his unofficial character—that is to say, without the leather jacket—and led us to his house, which is one of the usual comfortable mat and reed buildings of the place, whose shade is so grateful after the glare on the water. The women folk were busy cooking, and very well the younger ones looked in the short petticoat of *gnatoo* that is their only dress when free in their own homes. I think I have said before what an exceedingly good-looking girl Friday's elder daughter is, and she is as full of coquetry and life as she is pretty. In colour

many of the Tongans are fairer than Spaniards or Greeks, and I think it a pleasanter colour too.

In a short time we all migrated across the island to the windward side, a distance of about two hundred yards, through Friday's little plantations, that we might have the benefit of the light breeze blowing, and there, reclining in the shade on mats brought for the purpose, we waited dinner, or whatever the banquet was called. I never in any part of the world saw a host so attentive to his guests as Friday, nor one so anxious to make them comfortable. The first course was fish-soup, served in coco-nut shells, which I endeavoured vainly to drink, it was so rich and oily; neither could Stodart, but Gilbert sacrificed himself on the altar of politeness and bravely finished his. Then Friday's wife came forward with a very good fish on a fresh green dish, and, holding pieces of it in a leaf in her hand, picked out all the bones and handed us the best bits, whilst another dark-eyed woman drove away the flies from it and us with a green and leafy branch. After this came yams, and a capital fruit like Spanish chestnuts, roasted, and bananas, and at the end coco-nuts fresh from the tree, which one of Friday's "vicious felons" nimbly mounted. This was the finest of the four, his handsome face shining with good temper. Between him and Friday's daughter I suspect an attachment, as I observed one or two little love passages which seemed to escape, or were disregarded by, the parental eye. May they be happy, and may they continue to lead the same pleasant savage life that they evidently intended doing when I saw them, without giving each other cause for jealousy, which latter fact I very much doubt indeed.

Friday, although he sat beside us, would take

nothing till we all had finished, then, joining the women and children and "boys," ate up the plenteous remains of the feast. During the hottest part of the day we all reposed in the house, and then I rambled off by myself, and amused myself innocently by looking for shells and coral, in which pursuit I was joined by two little naked children of five or six, who knew where to look for all the best ones. It is surprising how soon even the brightest shells become bleached and colourless exposed to the sunlight on the sand.

When the day began to decline the women commenced their *too-too*, making the *tappa*, all beating on one long trunk, and making almost as much noise with their chatter and light laughter as with their mallets. It is very pleasant to sit watching them work, the graceful play of the arms and the deft manner with which they change the mallet from one hand to the other are both admirable. Towards sunset we bade good-bye to our host and family, and left with regret this happy island. It was a pleasant sight to see, as we were pulled away from land, Friday and his wife on the shore waving white *tappa* to us when the sound of their *ofa* was lost; at last we saw them turn and disappear amongst the bananas and palms about the house. The same four boys rowed us to the schooner, and we tried to race a large canoe with several brawny paddlers in it; but we were too heavily handicapped, as we broke a thole-pin, and Gilbert, who was steering, not knowing the reefs, and the boys pulling too hard to be able to look over their shoulders and direct, stranded us on one for a time; the other men, going over it in their canoe, which hardly drew any water, got right away from us. Our boys were very annoyed, and what made it all the more galling was the fact that some Tongan

beauty seated in the canoe laughed aloud and jeered at our discomfiture. We brought the boys on board and gave them some food, some presents, and some pills, of which they are inordinately fond, looking upon them, I think, in the light of some rare confectionery. They are gone again now, these three hours, having calmly rowed themselves back into bondage. I have, after mature consideration, arrived at the conclusion that I should not much mind being a prisoner in Tonga if I could ensure being imprisoned *en famille* at Friday's island.

One day before we left Nukualofa I sallied forth with the skipper and paid with him several visits to native houses. It was very amusing to see the way he set about talking to them, thinking they would understand a strange jargon of broken English, that it would have puzzled many a Briton to comprehend, if he spoke very slowly, very impressively, and *very* loudly. He prides himself upon his linguistic powers, and although this is almost his first walk ashore in Tonga, he translates for me in the kindest possible manner their replies. As thus—

"Ah, d'yer see, now he's saying he is glad to see us, and will we have something to drink. Of course we will, a ko-ker nut." At the same time pointing to one, which of course they instantly give him, and he then remarks, his jolly face glowing with satisfaction—

"Ain't it queer how I understand 'em."

In all the houses they seemed glad to see us, inviting us to enter with a hospitable pat on the mats with which the floors are covered, and everybody produced *mtavas*, which are, I suppose, in season just now, the little children trotting up and offering us the fruit in a charmingly friendly manner. Evidently good man-

ners and pleasant ways are taught them early. After I left the skipper I went off through the little open space, with its oleanders, gardenias, and pomegranates, at the foot of the hill upon which the church stands, and, mounting the slope—a work of small difficulty—visited the large Wesleyan church. It is wooden, boarded and planked, and the building is made to resemble as much as possible the pleasing conventicles of the order at home in former times. The Roman Catholics, where they have managed to creep in, exercise much greater judgment in the erection of their churches, conforming to the usual Tongan form of building as much as possible, and so getting a wonderfully cool church, where the people can sit on the floor in the manner of the country, and not be compelled to perch on hard slippery benches as in the Wesleyan church at Nukualofa. This building did not interest me much, nor did the tombstone to the memory of the gentleman who in 1840 endeavoured to convert the Tongans to a religion of peace by going about sword in hand for that purpose, although with a Bible tucked under his arm, and who got deservedly killed for his pains, probably thinking himself a martyr all the time. This tombstone has been put up by King George Tubou, a regular "professing Christian," and the epitaph is really charming, as the supposed work of a contrite Tongan.

In one house I entered they asked me what I had under my arm, and I showed my sketch-book, with which I had gone forth intending to insult nature in a drawing; in this was a portrait of a native man, with which they were so pleased that the women of the party were seized with such a desire to be immortalised that they insisted upon my drawing them and

their babies there and then. One of them sat like a rock, and I got a good likeness of her and of her baby nestling in her lap; but the other, whom I had put in profile, evinced so much curiosity to see how I was getting on that she could not sit still a moment, turning her head constantly to get a look at the picture.

Thinking that at last we were to leave Tonga, I went to say good-bye to the consul, who has helped so much to make my visit here so pleasant a one. I never liked a place or a people so much: there is such an unselfish, kindly, and hospitable feeling amongst the natives, and their manners and ways of doing a little kindness are so full of courtesy and good feeling as to stamp them thorough gentlemen. I learned to-day from the consul that the fat man I saw in Auckland at the agent's office before I started, who told me about the hurricanes, was the very minister of whom I hear so much. He must have thought I was coming to look up evidence for the High Commission, and also thought me exceedingly diplomatic, as I would not say a word to him on the subject, thinking his questions mere impertinent curiosity. This accounts for his trying to dissuade me from coming, and for the mysterious remark he made to me then: "Ah! we public men cannot afford to talk; you are right to be silent."

As another instance of the ways of these charming Tongans, this:—Stodart and I, coming away from the consulate, looked into a native house as we passed, and were instantly beckoned in, or rather waved away, for when they wish to sign to you to enter, they wave their hands as though saying "Be off." They unrolled their best mat for us to sit on, and a white-haired old lady got up at once and brought us a fine coco-nut to drink, and a whole heap of *mtavas* and most delicious

bananas for us to help ourselves. Seeing that I was hot, one of them instantly found me a fan beautifully woven of grass, and the mother entertained us by showing us her work, fish-net making, which she knotted with great rapidity and skill; and her pretty daughter, leaning to one side, raised a thin cloth and showed me, with beautiful maternal pride, her tiny little dark baby lying soft asleep in a bed of *tappa*. All the mothers think that I have babies of my own "over there," waving their hands seawards, because I show an interest in their dusky little ones. I often think of this quiet little household, and hope that the sweet soft-toned voices of the women still sometimes speak of the tall fair *Papalagi* that they saw that once only. We gave them some of our cigarettes, not as payment, but as a return for their kindness, and these they received with quiet *faka fetais*, and, smoking one, put the others by for their absent men-kind. Some little time ago the powers that be tried to stop the women smoking their tiny cigarettes, under a fine (of course), as they have done their beautiful dances and wrestling matches; but this slight concession has been ceded to them, that the women may smoke if they wish. The consul tells me that vice has enormously increased under this system of repression, as it always will when a nation's customs and innocent pastimes are tyrannously prohibited and suppressed. Vulgarity and retrogression in true morality must march hand in hand when a people is varnished, perforce, with a veneer of artificial manners and morals. I may be scarcely competent myself to speak of these things, and perhaps do but echo the opinions of the old inhabitants who are likely to know; but is it less probably true for that reason? It seems a terrible thing to say, when one thinks of the many earnest

lives that have been sacrificed in a work which had perhaps (for the natives) better never have been begun. Extinction seems to follow so swiftly upon the steps of civilisation that it would seem, great though the blessings of it may be, that it would have been better for them as a race to have remained in their old heathen faith, which, superstitious though it was, still was good and pure enough to make brave courageous gentlemen, not afraid to die, and women with a kindliness and generosity greater than our own.

Mariner, who lived amongst the Tongans long enough to learn not only their habits but their modes of thought, and even their religion, says that they believed that there were gods who had the power of dispensing good or evil to mankind according to their merit, and also mischievous gods who sent all sorts of little troubles, not as punishments, but from a love of pure mischief. All these superior beings were immortal. They believed that all people had souls, but only those of nobles and chiefs lived again after death; these all went to a large island that lay, they said, to the north-west of Tonga, named Bolutu, and there were eternal. They taught that all rewards for virtue and punishments for vice came in this world, and that human virtue consisted in paying respect to the gods, nobles, and aged persons; in defending one's rights; in honour, justice, patriotism, friendship, meekness, modesty, fidelity of married women, parental and filial love, observance of religious ceremonies; in forbearance of temper and patience in suffering. Surely a good enough creed. It will be said that we teach them the beauty of self-denial and unselfishness. Why, no Tongan, however hungry or small his meal, would *think* of refusing to share it with another; and unselfishness was so general that

it could not be thought a virtue. When Mariner lived with them it was a saying, "As selfish as a *Papalagi*."

I have been making numerous inquiries respecting the advertised medicine "Tonga for Neuralgia," but can learn nothing of it here. The consul, who speaks Tongan well, has been doing so for a long time with a like result; but he tells me that they have many wonderful remedies, and amongst them one that he and many other Europeans have used with complete success for toothache. This remedy fails for neuralgia. This particular medicine is the secret of an old woman who lives a long way from here in the back country; the consul sent for the cure when suffering agonies with his teeth, and in a little time she sent him back a small bag of what looked like masticated leaves. An infusion of this had to be made, and the mouth well washed with it, and used as a gargle, but not to be swallowed. It gave almost instant relief; and it seems as though the nerves of the teeth are destroyed, as he has never suffered any pain since, although the teeth have decayed as before, when aforetime he endured agonies. Some time ago, too, he had a terribly bad attack of gout, and one of his servants, seeing what pain he was in, went off and returned with some native medicine, with which he fomented the swelling and quickly reduced it; the application of the cure almost directly relieved the pain. He says that he has never had such a cure before, and this was a fit that threatened to lay him up for a fortnight. Unfortunately this is not a permanent cure, as the other seems to be, says the consul. It appears that these wise women guard their secret with the greatest care, and will not be induced by any bribe to part with it, until, feeling their end drawing near, they

confide it to some one or other of their relatives, who again preserves the treasure in like manner.

The next day we were up betimes, although it is Sunday, for the flies will not allow us to enjoy the extra hour in bed that is the glorious privilege of a free-born Briton at home; at sunrise up you must get. Stodart and I went early to the shore after our swim, he recognising the sanctity of the day by sticking on a huge white collar, the starchiness of which was a sight to behold for about five minutes, when it was reduced to the condition of the merest rag flapping at his neck, he being a young man of a "full-bodied" constitution. We went together to visit a family of natives that we know, who live in a grove of palms quite near the beach, and our entry was hailed with pleasure. They regaled us in the usual manner, and the young women of the party proceeded to dress our hair for us in an exceedingly pleasant way of their own. Mine, I was somewhat surprised to learn, is greatly admired, being, naturally, the colour they strive to attain by art, and when it was dressed *faka Tonga*, in Tongan fashion, I considered, on the whole, that I should make a rather fashionable native. Unfortunately, being, like Jonathan, of a "ruddy colour" (or was it David by-the-by?), the likeness could not be complete. I am growing quite ashamed of my white skin, which certainly does have a sort of poor look by the side of the rich tones of the natives.

We idled the morning away very pleasantly, learning a little Tongan and trying to teach a little English, whose harsh sounds our pupils could not manage to pronounce, and having a good deal of laughter and merriment. Indeed, they are always bubbling over with laughter: it lies lurking in their eyes and lips, and at

the slightest provocation they are gleaming or dimpling with delightfully contagious merriment. We watched, too, the stream of natives coming out of church, where they had been singing loud enough to be heard miles out to sea; it was rather a sad sight to see these poor creatures dressed out in the ridiculous manner prescribed by their heavenly guides, as though trousers and shirts for the men, and bonnets (heavens, those bonnets!) and pinafores for the women, were almost as much a means of salvation as "saving grace" itself. On Sundays the old king generally goes to church, and it is then one of the occasions upon which his bodyguard appears. He has two men, who are dressed up in some ridiculous red uniform, and these, on Sundays, stand at his gate and present arms in the most proper manner as the king goes out, and the instant he has passed through the royal guard has to turn and run as fast as ever they can, by a back way, to the church door, where, breathless but grave, they present arms again upon his Majesty's entrance. Many delightful stories are told of this the Tongan army, which can be increased upon an emergency to ten efficient men of the line. Some time ago the king was out in the country away from Nukualofa, where there was then some slight disaffection among the inhabitants, who had not shown their loyalty by moving the wooden barriers which are erected at the entrance of the towns to keep out the pigs. Seeing this obstruction incensed his Majesty, who forthwith ordered his guard to charge the barricade. This they instantly did, with the only result of completely doubling up their bayonets, and having to come home again with their weapons over their shoulders, twisted into semicircles like sickles, for all the world like a party of reapers.

At mid-day we returned to dinner on the schooner, at which "plum-duff," with a mysterious brown-looking sauce, the triumph of our cook's art, always served in an old tin mug, takes a conspicuous place in our Sabbath feast. I received a note from the consul this morning saying that he should be at home all day and glad to see me, so in the afternoon I went there; the shade of the house, which is the coolest place in Nukualofa, being very delightful, the day having become terribly hot. We went out a long walk in the bush, of whose beauty I never tire, and found many strange things, amongst which was the liquorice plant, from whose choice juice, in my nursery days, have I many a time made "wine" with water in a medicine bottle. We visited a little marshy piece of ground, where the consul has planted *Phormium tenax*, the New Zealand flax, hoping to acclimatise a plant that would be so useful to the Tongans. I fear it will not thrive in all this heat. In our walk we came across an old deserted house, surrounded with groves of oranges, citrons, and limes, which I shall certainly visit to-morrow with a big basket before we leave for Haapai. On our way back we met many natives, all on their way to evening service, the women walking with the swinging gait that is peculiarly their own; they walk very well, and swing the arms backwards and forwards as they step. It is considered a beauty to be able to swing the forearm far back, so that at the elbow it forms quite an angle, and I have seen women who can do this to quite an astonishing extent. A very heavy tropical storm came on as the service was ending, the rain descending in torrents. I fear some of the tawdry finery will suffer. I called for the other men at a

native house, where we had agreed to meet, and after a bowl of *kava* we all came aboard together.

It seems almost that we are never to get away; here is another day and we still are at Nukualofa; so steadily blows the wind from the north that it would be useless for us to start in the teeth of it, so here we have been lying, ready to start at any change, all day. I, for one, should not feel it a very terrible calamity to have to remain here a month or two, but I suppose the unfortunate charterers of the schooner would. The consul most kindly wants me to stay a month or so with him, but I must farther afield yet. Every one is foreboding a hurricane, and all about the place people are fastening down their houses with ropes, and supporting them with props in shaky places. The force of the wind during these hurricanes is almost incredible; a year or so ago four large frame houses were blown quite away, and they and their contents deposited in a little swamp, distant a hundred yards or thereabout from their original location; and in Fiji, a few weeks ago, we hear, a good many ships were sunk in the harbour by the same hurricane that blew the end of the coral jetty away here. So very local are these disturbances however, that we, sailing within a hundred miles of it, felt none of its effects but the heaviness of the swell. We are hoping to reach Vavau before it breaks, as there is a harbour there where any ship can ride in safety.

Remembering the deserted garden of yesterday, I pulled Gilbert ashore this morning and led him thither, through a maze of bushes which grow so thick together that, excluding every breath of air, the heat is terrific. We met a native who gave us a rough basket, which we immediately filled with limes and

unripe oranges. The latter do not thrive very well here; the fruit generally falls a prey to an insect just before it ripens. The limes are horrid things to pick, having long and very sharp thorns on their branches, which pierce through one's tightened trousers in a singularly unpleasant manner when one stoops. All sorts of queer things grow in this old garden, returning to wildness from their cultivation with a joy that shows itself in the beauty of every riotous branch. Citrons grow large and yellow amidst the tall tangle of reeds and rushes that now encroaches on them, and odd trees are covered with strange fruits whose names and qualities I know not. There are bushes of prickly pear, covered with their yellow cactus blossoms, in endeavouring to pick one of which I got my hand covered with the tiny hair-like thorns that enter the skin so easily; with these grow oleanders and pomegranates, the starry gardenia, and the royal hybiscus; and about the fallen house-posts trails the *clitoria*, whose masses of flowers look like bits of heaven brought down to earth.

With our plunder we returned to the schooner, and the skipper was so charmed with the fruit, particularly the green oranges, that he said I must go ashore with him there and then to get a larger stock to last him to Haapai, for, as he has "a breast as broad as Hercules," and the constitution of a bull, he is pleased to think that he is somewhat delicate, and that one of his "longs" is not quite what it should be; and as he is convinced that sour oranges are good for all consumptive tendencies, we went ashore to gather more. I took him to my garden, where he instantly fell to and consumed so much of the acid fruit that I expected him every moment to fall down and die in

agonies before me. He ate enough, I am sure, to carry off at least five ordinary men, and then exclaimed, calm and unmoved, "Ah! them's done me good," and tried to cough.

I watched him go off alone with some little anxiety, and then went to visit a native *fale* (local colour again), where dwells an old lady I know, that I have been for some little time attending medically. It is a queer thing what a passion these Tongans have for medicine; give them a pill and they will enjoy themselves prodigiously—only let it be a strong one, for your reputation as a medicine man would be as naught unless your drugs are of the most violent nature. The old dame that I went to see was complaining of headache, *gnagnou*, when I was on shore this morning; so, looking at her tongue, to the delight of a houseful of consoling friends, and feeling her pulse in a highly impressive and mysterious manner, in a way not unknown to physicians elsewhere than here, I promised her a remedy. Having put a good-sized packet of carbonate of soda in my pocket when I returned to the shore with the skipper, I went to her house. I found that the old lady was out, but had left the house in the charge of her daughters—charming girls, whom I hope to meet in a better world, as I fear I never shall again in this. One of them, struck with the amazing beauty of my hair (always a surprise to me), thought it a pity that such good material should be so ill dressed, proposed to do it *faka Tonga* again. Of course my reply was *io*, "yes," as the process is so pleasant a one; and do it she did in a truly marvellous way, with her fingers and one of the capital long-toothed combs they make and use. Taking a little deliciously-scented oil, she then proceeded to anoint me, and, Bibleways, "made my

face to shine." With the addition of a *sessi*, a queer sort of garland of buds, sweet-smelling leaves, and long streamers of the fine inner bark of some shrub, like pale ribbon, I was complete. Some time after the mother came in, and I at once, putting on the physician, looked as solemn as I possibly could in all the idiotic decorations that I had on. She told me that she still was suffering from *gnagnou*, so I ordered them to bring me water and five limes. There being none of the fruit in the house, one of the girls was off like a stag, and came back panting in a moment with a fold of her *tappa* full of them. Taking some of these I began to squeeze the juice into a coco-nut shell cup, whereat all the company began to be deeply impressed, and when, having added a little water, I produced the white powder from my trouser pocket, the excitement became intense, and the old lady looked alarmed. What shall I say to describe their utter astonishment when, amidst profound silence, I put in about a teaspoonful of soda, making the mixture violently effervesce. Handing the foaming bowl to my patient, I bade her drink it off at once, which she, although horribly alarmed, instantly did, reaching the bottom of it with no small amount of gasping. She immediately—such is faith—pronounced herself much better, and probably really was so shortly after, for it is an excellent remedy. The subsequent "fizzling" in her nose caused her no small astonishment and renewed alarm. All the others, seeing the old lady still alive after it, were possessed with an extreme desire to try this seemingly boiling drink, and she was much questioned as to her "experiences," but I declined to give them any, thinking that I would not make my medicine too cheap.

By this time I know a good many words of Tongan,

having set about learning it in the right way, and the old lady knows a few English ones, so that I could understand that she is deeply grateful—so grateful that she promises to give me all sorts of things when her daughter comes from the other side of the island, and she will set to work forthwith upon a lovely piece of *tappa* for me, which I am to have upon my return here. Alas! I never returned to Tonga, so there the *tappa* waits my coming now: I wonder whose fair loins that piece will drape, as I am not to have it.

Meeting Gilbert and Stodart on my way to the boat, we needs must run a race; the skipper, who was with them, would not join "because of his chest," and then, it being only 90° in the shade, we idiots must fall to and play leap-frog, much to the delight of a numerous throng of brawny natives who had assembled to see the sport. Reaching the boat in this manner, we left Tongatabu, we sail at sunrise to-morrow, with fitting *éclat*. Had I known that I was leaving it for good I should have been more grieved, but then I quite thought I should return thither from Samoa. The skipper, who has seen the consul this morning, reports that the reading I gave Kauhiva's party, and the song I sang, created quite a sensation (as very well they might), for Mr. Symonds heard a lot of natives talking of it yesterday, and they were most anxious to know who I was and all about me. It appears that they considered the performance *aubito aubito lelei*, "very very good." I have since learnt (July 1882) that a terrible hurricane has visited the islands and devastated Vavau and Tongatabu, sweeping away all the native and European houses and churches, and stores thereon, and doing immense damage to the plantations and the crops. I wonder how my friends have fared through it all.

CHAPTER IV.

HAAPAI.

It has taken us three days' sailing from Tongatabu to Lefuka, Haapai, the middle group of the Friendly Islands, as a strong head-wind has been blowing steadily, and we have been beating up against it almost all the time. We were constantly on the look-out for the hurricane that is to finish us all off, but have seen no signs of it yet; they told us in Tonga that they have had one for nineteen years just at this time, and that we are sure to meet with it. So far we have arrived all safe. On our way here we passed Tofao and Kao, both volcanoes, active still at times. Now for a little story.

Not very long ago a ship sailing from America to Australia sprang a leak, or came to grief somehow, so badly that the crew (eighteen men, I believe, they were at first) had to take to a raft that they had had time hastily to build. On this they existed for fifty days, living almost entirely on flour mixed with a little water. Some died from the prolonged agony of exposure to the blazing heat of day and the chills of night, and want of sufficient food, but worst of all their torments was the want of water. Still, many of them lingered on, with that strange clinging to life that all men seem to have when near to death, for fifty days; when one morning, as the sun uprose strong and fierce, one of them, glancing almost hopelessly round the horizon—for

the last of their water was finished, had his languid eyes greeted by the huge bulk of Kao which rears itself 5000 feet above the sea. "Land! land!" he hoarsely whispers; he is far too weak to shriek, and points his skinny arm towards the south. The skeleton crew all stagger to their feet and see that what he says is true,—the blessed land at last. Although in sight it is many weary miles away, and had it not been for a shower that fell that day, whose raindrops they caught in their rags of clothing, they would all have perished with land at last in sight. One man went mad, and had to be restrained from flinging himself into the sea among the sharks that followed them so greedily,—his sufferings all borne with patience, but his reason overthrown by this first dawn of joy. The raft was lightened, everything was thrown away, and sailing when they could, and taking their weary turn at the oars, at last they reached the shore. One man, a Frenchman, all along the merriest of the party, who had tried to cheer them when every other one despaired, said that at any rate he would save his property, and stumbled through the shallow water to the land with it, a box of matches, *dry*. These were the means of their rescue. At first they were too weak to climb a coco-palm to get the fruit, but at last the little Frenchman conquered his weakness and the tree, and bowled down the nuts that were food and drink alike to his companions on the sand. One of the number had left them in search of water, and never returned; but a twelvemonth after, in the rocks high up the mountain, a skeleton dry and bleached was found. It was he.

Revived with food, the little Frenchman said he would use his property and have a fire, though heaven only knows for why, and he straightway collected wood

and made one. These volcanoes are uninhabited and very rarely visited, but as luck would have it, Tubou of Tonga was on Tofao, the other island some miles away, collecting *kava* stones, and he, seeing the unusual smoke rise from the shore of Kao, made for the island and saved them. With undue haste they gave the starving wretches food, and by their very kindness almost killed them. Into the king's capacious craft they were taken, and all the survivors were landed in Nukualofa, where they were treated with the greatest kindness by the king; he even gave orders to one of the traders to supply them all with clothing at his cost, and when an opportunity occurred he sent them all to New Zealand. That is the story.

All about here, between Tongatabu and Haapai, is such a mass of reefs and islands, that one night before sunset we had to look out for some snug place to anchor in, and found a lovely little island in whose lee we thought we could lie, but we could find no bottom within what we thought a safe distance of the shore. It is surprising how suddenly some of these islets seem to rise from the sea-bottom. It was such a beautiful little place, the very ideal of a tropic island, with the same white birds I wrote of before flying over the coco-palms, and the sun setting grandly behind it, all gold and crimson, into the silent sea. The light breeze as it came softly from the shore was sweet with some delicious perfume, and the land birds—for we were near enough to hear them—were singing their latest evensong. Two lithe figures emerged from the beautiful foliage of the bush, and from seeing us heave the lead they seemed to know what we wanted, and signed and shouted to us to sail round a little jutting point, where, sure enough, we found good and

safe anchorage at last, in ten fathoms, sandy bottom. Here we were soon surrounded by a crowd of dusky fellows, who pulled off to us in their little canoes, and who were only too happy to come on board if we would let them; and later on we were hailed by two English voices from a canoe that came alongside. They were two Englishmen who were living on the island alone, and it was they who told us of the shipwreck. The king had brought the rescued men to their island first for proper food, as it was the nearest where they knew they could get it, and they said the condition of these poor fellows was piteous,—their lips and tongues all sore and bleeding from licking up the dew that fell at night-time on the raft, and their bodies reduced to the merest skeletons. We sat talking late into the night, as the dwellers on the island were too glad to see a fresh face to go away early.

Next morning the native pilot, who had engaged to bring us to Lefuka, came on board "while yet it was night," and all of us working like niggers we had the anchor weighed and everything ready to start by the time the sun began to think of rising. The pilot is a fine fellow and cheerful, and spends most of his time in the crosstrees, howling down rather unintelligible directions to any of us who may be at the wheel; one word he can say with great richness—"luff," and I think he says it really oftener than necessary for the mere pleasure in repeating it. All the day we were passing the most delightful little islands, many of them the merest islets, with each its crown of palms. These were all uninhabited. One that we passed at some little distance is the royal burial-place of Tonga. We only made twenty-five miles yesterday, and found safe

anchorage in Lefuka Harbour, six or seven miles from our port. The sound of a heavy surf breaking round us all last night was the only one to be heard.

Early this morning we dropped anchor within the inner reef; there is but a very small and narrow opening in the coral, through which we glided and dropped anchor quite close to the shore. Lefuka is a very much smaller place than Nukualofa—somewhat of the same character, but wilder, less cleared, and more luxuriant as to the vegetation. The tide does not seem to go out so far, the islands probably rising more steeply than Tongatabu, although, like it, they are quite flat. There are four principal islands in the Haapai group, divided one from the other by such shallow channels that at low water, I believe, they are fordable. Lefuka is the principal place of the four.

I landed almost directly we arrived, with Stodart and a big box of Bibles, which we managed to get out of the boat and trundle up the sand above high-water mark with no small difficulty. The Bibles must all have been "family" ones, the box was so heavy. Leaving Stodart to find the missionary and tell him of this, I started off as usual up the beach. Close by the place where we landed, and some little way out in the water, was a curious pen made of rough stakes driven into the sand and wattled together. I could not think at first what it was for, but learnt afterwards that it was where the chief of the place, being an epicure and aldermanic, keeps a stock of live turtles. There is no broom road here, but below the coco-nut trees, which come close to the shore, there runs a charming shady path, with the young palms growing under the taller ones, and meeting overhead in a lovely series of arches. After walking about for some time and becoming very

thirsty, and thinking besides how well it would sound to say, "I was thirsty, so I climbed a palm to get a nut," I endeavoured to climb one, and never in all my life had such a task before. The first time or two I ignominiously failed, but dashing my hat upon the ground, I rushed at the tree and swarmed up it in true English schoolboy style. I was proud of that nut when I had at last clutched and clawed it off the tree, although, to tell the truth, the palm was not a particularly tall one, I having looked for the very smallest I could find that had any nuts on it. I came down in a terrible state of heat, dirt, and perspiration, but rejoicing, and had almost as much difficulty in opening my treasure as I had in gaining it, the green husk is so very tough and hard; but at last, after gouging away at it for some time with my big knife, I made a hole through it, and thoroughly enjoyed the clear cool drink after all this trouble. The drinking of much coco-nut water by those unaccustomed to it has a very singular effect on some of the organs, which I would not credit until many witnesses overcame my scepticism. Medical men do not seem aware of the fact. I consider that on the whole I have had a decidedly hard morning, as, not satisfied with my coco-nut experience, I climbed another great tree after the beautiful bright red seeds of a creeper that grew up it. I found a good many of them, and a native passing, and seeing what I was searching for, very quickly found me a great many more without going up the tree at all, by just moving away the topmost layer of leaves, under which a great many were lying only waiting for the wet weather to begin to quickly germinate.

In the evening I went off again by myself—it is so

lovely here at night-time, for the crescent moon shines bright and strong. So delightful was the coolness of the evening that I continued my walk up the beach for an hour or so: it is pleasant walking, for the sand is hard and firm; and falling in with two natives,—I somehow always manage to fall in with natives,—went with them to their village at the end of the great sweep of the bay, and at their invitation went for *kava* to their house. What I could see of the village was charming, —all of brown native houses; and there I was by my two friends introduced to a large party seated outside a house, round a little wood-fire that they burn to light their cigarettes at. I was given a seat of honour on a mat just under the overhanging eaves facing the circle. It is very strange how soon the dogs, that are always in plenty about a native village, know that a *Papalagi* is approaching; no sooner had I set step in the place than all the dogs in the town were barking madly, and they disturbed the slumbering pigs, who, with their little ones, ran squealing about, and the whole place was in an uproar. The native dog will not make friends with you like an English one does, I believe they are of a different breed from ours altogether. There is a great dearth of *kava* in all Tonga just now, and there was none to be found in the village, so they make another and very pleasant drink as a substitute for it. They open about a dozen coco-nuts, and empty the contents into a large *kava* bowl; into this they squeeze the juice of six or seven green oranges, nearly ripe, and then, to give a little pungent flavour, they take a few red capsicum pods, and wrapping them in a bit of *tappa* they press out some few spots of the juice into the mixture. This drink is very good, and we had a couple of bowls before I left,

when the numbers of the party had greatly increased, for, according to Tongan custom, anyone can come to an affair of this sort without invitation, and the report of my presence had spread in the village.

My walk back along the beach was a delightful one: I could have stayed out all night, so cool was it after the great heat of the day, although there was but a very slight air moving. The mass of the forest, which comes right down to the shore, looks dense and black, save where it is fringed with the palms on the edge of the sand; outside, the surf is beating ceaselessly on the reef, and great sheets of spray rise and catch the moonlight; but inside, the sea is glassy, and the fair full light of the moon makes it shine like burnished silver, except at the shore, where the water breaks in mimic waves. Most exquisite perfumes come from some of the night-blooming flowers, to which the heavy moths are flying, almost all of which flowers are white or pale coloured. One large white scentless flower I found at the very edge of the bush, that had a distinctly saline secretion at the end of its tube instead of honey; at first I thought it might be an accidentally carried spot of sea spray, but I found that all were the same. Occasionally I would be startled by a large shadow gliding suddenly across the sand in front of me, and looking up I would see a flying fox silently flitting between me and the moon. These foxes are very characteristic of Tonga: one sees them every night when the sun has quite gone. They are a very large species of bat with huge wings, two feet or more across, and a coat of soft brown fur. By day they are to be seen hanging head downwards from some tree like an unholy fruit.

When I reached the place where we had left the

boat when we landed to-night, I found that none of the men had returned, and I, not knowing how long they would be, nor indeed what time it was, began to search for a canoe in which I could paddle myself over to the schooner. Finding none, I determined, rather foolishly,—for, after all, sharks are sharks, and not pleasant fellows to meet in the water,—to swim across, so, pulling off my clothes, I stowed them away in the stern of the boat, taking the precaution to put my sleeve-links and my pocket knife, the old black-handled one that G—— gave me years ago, which has stuck so faithfully to me, into my hat and on to my head. Off I swam; the water was delicious, but when I arrived at the ship-side I could find no rope, though I swam round her, and suddenly feeling what I thought was the smooth body of a shark (it was probably a banana stump), I gave a yell which brought Johnny quickly running to the side, who promptly heaved me a rope, by which I hauled myself on board in a great state of alarm. When the boat came off an hour or so after I had gone to sleep, Gilbert, who shared the quarterdeck with me, woke me up to give him a bath, and told me that my trousers and shirt were gone, but that my boots were left, at which latter fact I was much rejoiced, for boots are the same as friends,—none so good as old ones. Much joy I wished them of the trousers, which were new, I believe, in the year of our Lord 1865, or thereabouts.

Next morning, having had my swim, and still being airily dressed,—island fashion, in a towel,—I was asked by Billy Mustard in a most mysterious manner, with many winks and strange sniffs, to draw the portrait of Isafé, a sort of custom-house officer, who comes aboard to see that we are not smuggling all sorts of things

ashore that we ought not to do. I, with the great natural acuteness that so distinguishes me, at once perceived that they wanted this gentleman's attention fixed away from the proceedings in the loading of the boat. Feeling the smuggling propensities of my ancestors rising strongly in me, and having the interest of the schooner deeply at heart, I requested him most blandly to sit to me, and the innocent savage succumbed to the wiles of the white man. I placed him with his back to the boat, and signifying that he was to sit quite still and look at me, I began to draw him diligently, hearing all the time, and seeing, when I looked up, the contraband goods softly going over the side. The portrait is not in the least like the good-looking original, but it answered the purpose it was wanted for just as well as though it had been excellent. I then finished my toilette, and ate my breakfast with a clear and happy conscience. I take almost as much interest in the success of the venture as though the cargo were my own, and have managed one small sale of potatoes with great skill, showing, I am told, a true mercantile spirit in the transaction, — the reason being that in my ignorance I represented the goods to be of much better quality than they probably were.

On the shore, just opposite the schooner, is a strange, large, well-built native building—a canoe shed; it is very long and much loftier than one would think necessary for the purpose. The roof has rounded sides, which approach quite close to the ground, and across the opening at the ends is a rough sort of open palisade-work, the use of which I cannot see. Into this shed the Lefuka people haul their canoes to protect them from the sun, and there is generally some

brown fellow inside at work upon the canoes, either making or repairing one.

Crossing the island to-day, I found the windward side of quite a different character from this. There are little cliffs of coral rock there, ten or twelve feet high, which take the place of the strip of sand on the leeward side. It is very astonishing to find plants growing, and flourishing too, on these bare lime rocks, which seem without a vestige of soil even in the crevices; but there they are,—in every cranny some green living thing. Out towards the reef a whole crowd of women were fishing with small nets, which they throw over the little shoals of fish that swim about in the shallows, and very graceful are their attitudes as they fling them. There is a very wonderful surf here booming on the windward reef, beating up such sheets of spray that the other island, seen through them, seems veiled in mist; where the waves beat wildest there thrives the coral polype best. In a natural bath in the coral rock I had a most luxurious bathe, the water being warm and delightful. One does not need towels to dry oneself, as a few minutes' exposure to the sun most effectively does the work. Returning along a native road I climbed a small palm to get myself a nut (see how calmly I speak of it), and found under the fibrous matting, round one of the leaf stems, two good sized crabs, with large shells on their backs. I was surprised at this, as I thought the tree-climbing crab was a special species, and not one of the hermit sort that is so frequent on these shores. Speaking of the matting round the tops of the coco-palms reminds me that I have not written of it. Round every one of the large leaf-branches is wrapped a coarse sort of matting of fibre, so strangely like

woven cloth as to deceive me at first. There it is with weft and woof, as though meshed by man.

The sensitive plant grows here in the bush in great quantities; in places there are beds of it that quite cover the ground; it is a very fragile and beautiful looking thing; and it certainly does look strange to see one's track plainly marked by the shrivelled-up leaves at every footfall. The very vibration of the ground is enough to start the movement, and one leaf that you touch, contracting, strikes another, and seems to spread a very contagion of fear for some way round. I think there are many of the delicate leguminous shrubs and creepers here that are partially sensitive, contracting their leaflets in a very slight but perceptible degree.

I have ridden a little whilst I have been in Haapai, but it is not very enjoyable, the animals being really almost too miserable to bestride. These islands strike me as being more beautiful than Tongatabu, but all the people here say, "Ah, wait till you get to Vavau!"—which they tell me is the loveliest island in the South Pacific. The natives here are really gloriously idle; cotton grows all about the place, and of a good quality too, but they are naturally so well provided for that they will not trouble to earn money that they do not require by picking it. A great part of the money that they do get, it seems to me, is given to the missionary to spread the glorious tidings of the gospel to less enlightened isles. This is carried on to what strikes me as being a very pernicious extent. The feelings of these poor creatures are worked upon inordinately, and they are excited to a high pitch by sermons and exhortations, and they very often seriously hamper themselves by borrowing money to give to the

mission. The amount each person subscribes is cried out in church, so that not only does the right hand know what the left hand giveth, but everybody else besides, which is of course a great inducement to generous giving. One could understand their enthusiasm if they were, by their subscriptions, sending off their own missionaries to wilder parts; but it is not so—they only get fresh ones sent over.

In the evening, when the sun had set in a crimson blaze of glory behind Kao, which looks an almost perfect pyramid from here, I went on shore with Stodart, who knows the chief of the island, who lives in Lefuka. He is an *egui*, a noble of higher rank than the king, being descended, according to old Tongan mythology, from the first gods who came from Bolutu. They still possess the greatest influence over the people, and exact the greatest respect. Some people think that this Haapai chief will be king of Tonga on the death of the present sovereign, who now is very old. His wife, an enormous woman, is a daughter of the king. In the native-built house of this chief is a hideous old gilt sofa with frayed crimson satin coverings, on which it seems no one ever sits: I know we preferred the floor in the usual manner, and had the honour of being asked to use part of the chief's own mat. Tongan men always sit cross-legged, but the women never: they have their legs tucked away on one side, and they have a trick, which is almost universal, of rapidly shaking one foot, raised from the ground slightly by the other ankle, all the time they sit. There is another habit, which is general in this part of the Pacific, of expressing admiration and pleasure by a strange clicking, like that we use to make a horse go faster. Their manner of doing this

is really most expressive, the rapidity or slowness of the noise conveying every shade of opinion most admirably. At the same time they slightly nod the head.

Tubou's daughter, although so gigantic, is a pleasant and chatty woman; all the king's children are very huge, and the royal way she sent her handmaids flying was a sight to be seen. We did not take our leave till late, as fresh cigarettes were rolled by the attendant girls and handed us almost before the last was out; yet, late as it was, when we turned out we still found many people about, strolling in the cool evening. We met some young Tongan men we knew, who wanted us to stay ashore and make a night of it, but both of us were too tired to do so on this occasion. They led us by the hand to the beach, for the night was dark, and we did not well know the road through the palms, and regretfully called their *ofas* to us as we pulled out to the *Caledonia*.

Before the whole of Tonga became Christian it was here and in Vavau that the present king lived. The missionaries, getting themselves into trouble in Tongatabu by desecrating the temples of the Tongans, and checking all their pleasures and customs, by making the then king, a half-imbecile old man, *tabu* them, sent for Taufaahau, as George Tubou was then called. He went sailing down to Tongatabu to their assistance, evidently with the intention of extending his dominions by placing Tongatabu under his control, the missionaries and he mutually serving each other by carrying on the war. Captain Wilkes, of the United States Exploring Expedition, was there at the time, and says: "My hopes, however, of producing a peace and reconciliation among them began to decline, for it was

evident King George and his advisers, and indeed the whole Christian party, seemed to be desirous of continuing the war, either to force the heathens to become Christians, or to carry it on to extermination, which the numbers of their warriors made them believe they had the power to effect." Truly a Christian feeling. The feelings of "the heathen" are readily to be understood, for they had always been looked up to, not only by the Haapai and Vavau groups, but by Keppel and Wallis Islands as well, as superior, being inhabitants of "Sacred Tonga;" and to have a new and distasteful religion thrust upon them by an army of inferior Haapai and Vavau men could not have been pleasant. Captain Wilkes goes on to say that after the invading party had gone out to fight, when they had agreed to come to a conference, and had acted generally treacherously—"Thus ended my hopes of effecting the desired reconciliation between the two parties. The heathen are represented by the Christian party and missionaries as a set of cruel savages, great liars, treacherous, and evil disposed, and this character seems to be given to them only because they will not listen to the preaching . . . *I must here record that in all that met our observation the impression was that the heathen were well disposed and kind, and were desirous to put an end to the difficulties.*" It is satisfactory to learn, although it all occurred so long ago, that at last, after the United States Expedition left Tonga, and although finally the poor heathen was forced to give up his religion, his customs, and almost his nationality, he became the assailing party, and drove out the upstart George of Vavau, and packed him and his missionary allies, with all their religious bugbears, off to Haapai. I sincerely hope they had a good old

heathen time of it whilst they did hold possession of their own.

The day before we left Lefuka I started out in the early morning for one of my usual long rambles, and to show how easy it is to lose oneself in these places, where there seem to be no particular landmarks, and where the same luxuriance of bush appears on every side, I write this:—I proceeded up the beach, past the large canoe-shed, where a Tongan was patiently chipping away at one of their "dug-out" canoes, by the little path that runs along the shore just in the shade of the bush, intending to visit the windward side of the island that I had been to a day or two before, where I hoped to find some of those huge conch shells that they use here as a sort of trumpet. Knowing the general direction of the place I wished to reach, I turned boldy to the right, and kept marching along the narrow tracks that the natives make, turning two or three times, but always, as I thought, in the right direction. I seemed a long time arriving, but at last, hearing the sound of the sea, I pushed through the bush and found myself on the shore; but where were the rocks, and where the reef and the booming surf? I could not tell where I was in the least, and did not find out, until I had walked a long distance, that I was on the same side of the island I had started from, and had to stalk back in the blazing heat to the schooner, as we thought we might leave at midday.

There are absolutely no springs of water on many of these islands, and inhabited islands too, for the coco-nuts give an unfailing quantity of drink, but besides this supply the natives very cleverly avail themselves of the peculiarities of the palms to catch and store the rains. Nearly all the palm stems are

curved, and some of them which are very much so are selected, and in the base, which is frequently very thick, they form just in the hollow a great hole that will hold six or eight gallons, according to the size of the tree. The rain collects on the great leaves of the palm and runs down little channels they make on the trunk into the receptacle; this, when filled, they cover over thickly with leaves, and the water keeps fresh and sweet a very long time, and seemingly no injury is done to the tree.

As I repass the great canoe-shed, I see several men at work upon one of the canoes that look so out of proportion with the building, but I learn it was erected in the palmy days of the island when very large double canoes were used. [I came across this excellent description of one of these great canoes in an old book of voyages the other day:—"The king visited me this day with a number of their chiefs and people in a large canoe, and made a fine appearance on approaching the ship; it was the largest we saw during the voyage; it was one hundred feet in length, and of the double kind, which consists of two canoes of different size joined together by a deck thrown across them both; on this deck a small house is constructed, which serves for a cabin to keep off the weather; above the house was a small platform eight feet square, with a railing on each side; the mast, which is about thirty feet long, is supported by guys, having a long yard attached to it, with its mat sail of huge dimensions furled. The canoe of these chiefs was seen advancing slowly over the calm sea by the efforts of its scullers, and was filled with men keeping perfect time and making excellent music." This shows that the shed, to hold one of these great canoes, must be very large.]

We did not sail to-day after all, as the wind fell so much that we thought we should not be able to get through the little opening in the reef, and it would not be pleasant to rub up against the coral for a tide or two; we have struck once, and the peculiar "graunching" sensation is anything but agreeable. So we have amused ourselves very happily where we are, it being part of the charm of the place that you can always find some one on shore as idle as yourself and as open for amusement. I took Gilbert for a stroll, a gentle one, as he has been completely knocked up lately, and for the last few weeks we have been anxious about him; he keeps just as cheerful as ever, and his laugh is the merriest of the party; he is great at "nap" and invincible at cribbage, and has this afternoon been entering with the utmost neatness in a little book the odds he has laid upon his living until the schooner gets back to New Zealand. The skipper recommends all sorts of nostrums, which, I believe, Gilbert would take out of pure good nature to please him, and so doing would certainly ensure his losing his bets, if I did not countermand them with an air of authority as being a shade less ignorant of the subject than the skipper. I am no Esculapius myself, but I feel convinced that no man could derive benefit for hæmorrhage from the lungs by taking frequent doses of sulphate of potash.

We ended the day by swimming in the evening with the crowd of dusky fellows round the schooner; they are marvellous swimmers, and nearly all day long the water is alive with dozens of little children, who boldly launch themselves out into the waves—the quite tiny ones in the charge of the elder boys, who look after them tenderly and well. The men have all sorts of games which they play in the water, and in which

I tried to join, and in which I was much laughed at by the small boys, as I never could catch them and was always being caught myself. Three of the lads had an old canoe, which they paddled out into deep water, and swayed it from side to side till it slowly shipped water and sank, they shrieking all the time with pretended fear; this done, their great object was to bale all the water out again whilst swimming round it, and then proceed *da capo*. Some of the distances a Tongan will swim are almost incredible; there is one tale told that is universally accepted as true, of a man named Tohu, who left Haapai for Vavau with many others in a canoe, and in company with a second canoe, which was driven back by a storm that rose, and was safely beached at Ofalanga, one of the Haapai group. The first canoe, with Tohu on board, proceeded on its way for many hours, when Tohu, taking in the sail of the canoe, the wind and sea being then very high, fell overboard. As it would have been risking the lives of all to have tried to save him, he was given up as lost, and the canoe proceeded on its way. This was about two hours before sunset, and Vavau in sight. Tohu turned his face towards Haapai, and began swimming to it; knowing that the wind was in the north, he directed his course by feeling it blowing on his ears. So he continued swimming, resting himself at times by floating on the water, till the moon rose, by which he steered all night till dawn, when he found that he was close to land. Having thus almost escaped death by drowning, the wearied man nearly fell a prey to a huge shark, which, however, he managed to elude by reaching the coral of the reef. Resting there a little time, he again struck out and reached the shore in safety, though he fell exhausted and senseless on the sand.

This island proved to be Ofalanga, where the second canoe had been driven for safety, the crew of which found him unconscious on the shore, and brought him back to life. He shortly recovered his strength, and, the storm abating, they put to sea and returned to Haapai, where he found his friends occupied with the usual funeral ceremonies—his own canoe having reached home before him, and reporting him drowned. Captain Wilkes speaks of this as being perfectly well authenticated, and as having occurred only just before he was there.

To-morrow morning at daybreak we leave Haapai: of course I am sorry to leave—who would not be in a place so beautiful as this, and where one has received nothing but kindness?

CHAPTER V.

VAVAU.

ALL yesterday we were sailing here from Haapai; although we sighted the high land of Vavau in the evening, the breeze fell so light that we could not get in. But this morning, as the sudden tropic sun uprose swift and strong above the sea line, changing the faint azure and pale rose of the dawn to the bright gold and fierce light of perfect day, we sailed in amongst the rocky islets that guard the entrance to the loveliest harbour in the world, the harbour of Vavau. Quite unlike the other islands of the group, which are mostly of purely coral formation, and which seem to float on the calm surface of the sea, with their rim of golden sand and crown of graceful palms just rising above it, Vavau is bold, rugged, and volcanic, and is clothed from summit to the shore with one glorious mass of varying verdure. The harbour runs deep inland, with precipitous cliffs on either side, in which the constant action of the sea has worn great caves, in which the waves beat with a hollow sound. The sea was so smooth this morning as we entered the harbour—I shall never forget it—that the mountains and trees, with every parasite that matted them together in one wild luxuriance, were reflected in its glassy depths. The scented air was so light that our little schooner's sails hung flapping useless against the masts, occasionally

filling out as some slight puff of wind came landwards from the sea. The sun was mounting royally in the sky, and the day was growing hotter every moment; birds of rich plumage flashed across the little gold-lined bays, and the mellow call of some bird to its mate floated to us from the bush. The air was rich and languorous with the perfumes of the shore; we scarcely seemed to move, yet the wooded heights and palm-fringed beach glided dream-like past us. Every one on board was silent in the heat, no one moved, and the very helmsman seemed asleep; the light fair haze that lingered some short time about the beach was cleared away long before, and the tropic day, with its ardour and light, was with us in all its strength. Here and there amongst the trees a native house would stand, with perhaps a thin line of blue smoke from its fire rising unwaveringly; and little brown and naked children would run joyous to the shore to see us pass.

Towards mid-day we had rounded the last point of land that hid the little town of Nieafu from us, and we dropped anchor in deep water some short way from shore. We were soon surrounded with canoes that the natives paddled up to us, laden with golden fruit, and many of their sturdy paddlers scrambled on board. I am again struck with the magnificent physique, handsome features, and noble bearing of this people, with whom the average Englishman would not compare advantageously; and, again, their manners strike me as being as superior as their persons. Soon after we had dropped anchor a boat pulled out to us with an Englishman in her, who, coming aboard, and hearing that I was "the passenger," addressed me with so frank a smile, and took my hand so warmly to welcome me to the island, that my heart went out to him at once. He

asked me to visit him ashore, and, as long as the schooner stayed in Vavau, to make his house my home; I was glad enough to stay with so pleasant a fellow, and quickly had my bag of necessaries packed, and, stepping with him into his boat, was swiftly pulled ashore.

Nieafu is a lovely little town, almost buried from sight amongst great groves of orange trees, that are here no mere shrubs but fine trees, covered with the glossy foliage and loaded now with fruit. The house that Berrill led me to is wooden, cool, and shady, and is built upon a little height that overlooks the sea. It is sheltered from the sun by tall orange trees growing thick about it—above which rise, waving high their feathery branches, the slender stems of the coco-palms. Bushes of crimson hybiscus planted round the house make glowing spots of colour amidst the shade, and white gardenias, with whose perfume the air is heavy. Seemingly a paradise, but one where disease has managed to creep in and strike at the best, as it so often does. Berrill himself, I fear, is stricken; his constant cough tells me a tale that he seems not to notice; it is strange that so fine a man, whose breast is broad and deep, and whose noble physique would seem to offer no loophole for attack, should be succumbing to consumption; of the sadness of it I cannot speak, he is such a splendid fellow, high-souled and generous, loved by every one that knows him, and almost worshipped by the natives.

Stodart came and hunted me up in the afternoon, and we together went out exploring, and have come to the unanimous conclusion that this is the most exquisitely lovely place in the whole of God's great earth. Words are absolutely inadequate to tell of its beauty of land, or sea, or sky; everything is gorgeous,

rich, and wonderful. I seem to possess for the first time in my life an absolute and perfect satisfaction of my sense of colour. We passed through Nieafu, which is a long, pretty, straggling place, slowly ascending all the time along the edge of the cliff, gaining every moment fresh glimpses of the windings of the harbour amongst the rich green hills, and of the numerous little islets dotted on its surface. The path of soft green turf we followed was shaded with orange trees, of whose fruit we must have eaten bushels, and no one to miss what we took.

It seems strange to walk up and down hills again after the last few islands of flat coral, and the extra exertion is scarcely agreeable, so great is the heat. I always seem to find dozens of fresh and surprising things every walk I take: one that struck me to-day very specially was the admirable manner in which a bush, whose flowers were yellow, small, and inconspicuous, managed to attract the visits of insects so indispensable for the fertilisation of the ovaries. The leaves of this bush were a fair bright green, excepting just round the flower head, where they were spotlessly white, of precisely the same shape, size, and veination, but white. Perhaps these were the bracts of the flower enormously enlarged and coloured, as in *Poinsettia*. (I am told since that this is probably *Mussœnda*.) I saw these white patches, which were most conspicuous, from a good distance, and thinking them to be a flower I had not yet found I went to gather it, and found it to be what I have described, which shows how admirably it answers its intended purpose. Another tree, with deep coloured and singularly glossy leaves, had what at first I thought to be a spray of lovely crimson flowers, but which, upon

my climbing up a steep bank to examine them, proved to be a branch of young leaves, evidently coloured thus for some purpose, as they were produced in a different manner from the other shoots, being packed away in a sort of bud-case, from which they fell in a kind of chain when it was opened, and I could find nothing of the sort on the others.

As the evening began to close in I returned to Berrill's house, where, in a shady room, with curious Robinson Crusoe sort of furniture, he and I dined together. We had some very strange but pleasant dishes, served by a horrible-looking savage lately from the Line Islands. There is a species of very mild slavery existing here in the Pacific; ships go to the islands to the west, New Britain, New Ireland, the New Hebrides, and the Solomans, and also to those just at the equator, the Hervey and other groups, or, as they are called here, "the Line Islands." There they engage men, it does not matter how savage, for a certain term of years at, one may be very sure, a very low rate of wages. These men are brought to the more civilised islands, where they are made to work upon the plantations of the white man. It is to the advantage of the white to serve these fellows well and keep them in good condition, to get the most work out of them that is possible in the time; now all these vessels that transport the men—labour ships they are called—are looked after by Government-appointed agents, who do all that they can to prevent kidnapping and barbarous treatment after shipping. Still kidnapping—"black-birding" as it is called—goes on to some extent. These savages at the end of their term receive their wages in "trade," as it is technically called—that is to say, they have goods given to them to the value of the

amount they were engaged for; in this, in old times, these poor fellows were generally terribly robbed, having all sorts of rubbish given to them as equivalent for the money they had earned; but this, too, has been subjected to the supervision of Government overseers. At the end of the three years for which they generally engage themselves, without knowing either what the time means or what the work is to be, they are returned to their native homes. I believe hardly any of them will engage again after their first experience, for such work as they have to do in the plantations—continuous, monotonous, and hard—is very different from even a hard day's work at home. The shortness of the term fixed by the Government is much complained of by the planters, as they have only time to train these wild fellows into something like useful form when they are taken from them and returned to their homes. I am told that instead of becoming in any way civilised, as a rule they return with delight to their old customs and manners, and wallow in savagery, for to tell the truth they are a terrible lot that live much west of here, and without the comparative civilisation that seems native in these and other eastward islands.

Until quite recent years the barbarisms of these labour ships were notorious, and sometimes they are still perpetrated; traders would entice the inhabitants of an island on board their vessels and kidnap the whole party, scuttling their canoes and firing on such as resisted; the savage, with savage reasoning, attacking the next *Papalagi* ship that came to his group, in revenge, and so the thing went on.

Just before I left New Zealand a large schooner came into the harbour that had returned from the

Soloman Islands. How she managed to get back at all was a mystery, for all her crew had been killed but one lad and the skipper. These two had gone ashore in the dingey to the island where they were lying, and during their absence the ship had been surprised, and every one of the crew, nine in number, massacred, the captain's son amongst them. I fear it was a case of the sins of the father being visited on the child. The cabin, and indeed the whole ship, was swimming in blood, and spattered with the brains of the murdered men; when the skipper returned in the dingey, hailing his silent ship, he found it thus, and ransacked from bows to stern. I went down to this ship to try for a passage in her back to the Solomans, but the skipper refused to take me on the plea of its danger, he having, I fear and expect, laid plans for revenge. We were sitting in the little cabin, which still showed signs of the awful struggle that had taken place in it; the woodwork hacked and cut, and the curtains torn away from the rods, the cushions cut in strips, and the lockers all burst open. The door of the little pantry was standing ajar, and an ominous black stain showed where the cook had fallen. The skipper's wife, a dowdy person with eyes red with weeping, and her cheeks shiny with tears, spoke to me as we three sat in the little cabin, "Oh sir, ain't it sad for me!—what am I to do? Here am I, the mother of four as fine lads as iver was seen, two on 'em killed by those bloody savages, one drowned at sea, and now my youngest, my Charlie, has to go with his father." Here the poor woman burst forth again into passionate weeping, trying to choke her sobs, and mopping her eyes with the damp screwed-up ball of handkerchief in her hand. This first attempt failing, I took the

Caledonia, and have made a happier if less exciting cruise.

Now, all this long digression is *à propos* of Berrill's Line Island cook, Dick, a wild-looking dog that lives behind this house. There are several of these fellows about the place—one an oldish man, who some years ago murdered his wife, whereupon her mourning relatives set upon him, almost hacked him to pieces, and put one eye out; how he managed to live is a mystery, for he is one mass of awful scars. This good gentleman, an exception to the general rule, has stayed in Vavau a second term of years, as he is afraid to go home just yet, but will do so when he considers the animosity of his divers brothers and cousins-in-law has blown over. Good-night! I am off for a long night's sleep on a roomy mat and on a steady floor, and hope to enjoy it after so long a time in my cramping little bunk and uneasy cabin.

To-day I have passed a rather fatiguing time, having been walking about the island since morning, and to-night, as a wind-up, I have had one of the most exciting episodes that has ever occurred to me. Shortly after dinner, when Berrill and I had been joined in the verandah by a fat German, who has a store here in Nieafu, we heard the most demoniacal yells and war-shrieks proceeding from the rear of the house, and upon rushing round to see what it was all about, we found that Dick had stolen a bottle of Berrill's brandy, and having taken a good part of it was mad drunk and running *amock*. When we arrived on the scene he had a huge club in his hand, and was commencing to smash up every piece of crockery that he could find, and as dinner was just over nearly all poor Berrill's stock was out being washed. When this had

fallen a prey to his devastating club, the smashing and crashing inciting him to further onslaughts, he attacked with fury every hut, tank, and utensil about the place, and all fell before him.

When in this condition a murdering and destroying devil seems to possess them; no life is safe, for they will murder any and all that they can get at for the mere sake of slaughter.

His pretty wife rushed out of their hut as he savagely ran at her, and escaped, but a little deaf and dumb boy was left in it. Berrill ran out into the large enclosure in which the building stood with only a thin cane in his hand, but the brute tried to brain him with his club, and drive him back into the house. I rushed out after Berrill, fearing for him, he being so far from strong; and all the time the fat German, safe in the house, kept calling to us, and increased the clamour with the instructions which he shouted to us, "Tie 'im vis a r-r-r-rope!" also to "Get ze 'andcoffs!" but never a hand stirred he to help us, and the agility he displayed in making himself scarce when there was an alarm of this raving demon coming into the house would not have disgraced a man of far slenderer proportions, and made Berrill and me roar with laughter in all the danger. One moment, when Dick's back was turned, Berrill most pluckily ran into his house, where the child had been wailing inarticulately, snatched him out, and handed him over to me, and I took him to some native women, for there were crowds of natives at the gates of the palisade, who fled like the wind whenever Dick turned that way. The instant after we left Dick's hut in he dashed for a moment, appearing the next, shrieking like a maniac, as he was, with a great axe in his hand. Nobody dared approach him then, and the

work of destruction recommenced; every bucket, pail, or tin that he could get at he hacked into pieces, dashing the water about and yelling like ten thousand fiends.

It was a wild scene, with a weird wood-fire in one corner of the yard, into which now and again the madman dashed, scattering the sparks right and left, and never feeling the burns, and the lovely moonlight streaming down through the thick fringe of orange trees and cocoa-palms that grows all round the house. Berrill and I were flitting about the enclosure most of the time, he trying to stun Dick with lumps of coral and different things, but only succeeding in exhausting himself. At last he determined to shoot him in some not very dangerous part, but the caps were bad, and they only irritated Dick more than ever by their snapping. (I by this time was almost as mad as Dick; never before had I acted in so exciting a scene, for our lives were in constant danger from his axe). For two hours this went on, during which time he had managed to clear the palisade, and we could hear his yells as he went up the hill, which would give timely warning, we thought, to all to save themselves and get out of his way; but he returned at last, to our surprise, to the yard, where some sturdy Tongans had collected. One of these, a short but immensely muscular man, who is a champion wrestler in Vavau, sprang on to him from behind, and knocked him down, keeping him there, till assistance came, by kneeling on his throat. I ran for a rope, Berrill telling me where to find one—he, poor fellow, being almost exhausted with the danger and excitement of the night, and finding this, the Tongans bound him, fiercely tying him hand and foot. I wanted them to fasten his wrists to his ankles, but I could not make myself understood,

and I thought this precaution was really unnecessary, so secure he seemed. Then we left him to cool, on his back and apparently helpless; the German, who, in the bravest manner, appeared on the scene from somewhere on the other side of the pales directly Dick was thus prostrate, prodding him derisively with his toe, and exclaiming, as though he had done it all, "Ah ha, Miztere Dick, ve 'ave you now!"

After we had returned to the house and our tobacco, and the German to a little strong waters to put himself straight after his exertions, we heard for about three quarters of an hour howls and groans and derisive songs from the bound one, whom we thought all secure, when suddenly we heard something dashed into the room, and a cry in Tongan from Dick, who seemed to be calm and sensible now. "Here is your rope, Missa Bélo," and the fellow was away. At the very first sound of his voice, and simultaneously with the entrance of the rope into the room, we heard a shriek from the German, and saw him vanish through the verandah on the other side and disappear into the darkness. We rushed out after Dick, and Berrill was able to hit him once, as he was scaling the palisades, with a lump of loose coral, which he hurled with all his force at him; but the effort was too much for him, and he staggered and would have fallen had I not caught him, his breast heaving, and he being quite unable for a time to speak.

What has become of Dick we know not and care not, as the killing and destructive fit seems to have worn off him now. We—the place being quiet again and I having written this—have sat in the verandah talking of many things half the cool night through. How soon one gets to know another at such times as these, and I to-night, seeing deep into this man's pro-

found but simple soul, know that I can trust him entirely, and love him without fear.

His was a strange nature—alas, that I should be speaking of him in that sad past tense!—half-formed of necessity, for he had come to these islands when quite a boy: ignorant in some degree of many things that a man of his age in a civilised country would know, and yet wise in many from the self-same cause. Self-reliant and thorough his life had made him, yet the sweetness of his nature had prevented him from becoming obstinate or self-opinionated. He was generally gaiety itself, and yet beneath this fund of mirth lay a deep mine of poetry and feeling, which was reached but seldom, in quiet night-talks or solitary forest rides. Animated, loving and loveable, he had not wrapped himself in the usual conventional cloak of reserve, and one saw the sterling qualities of the man in his quickest look or slightest action. Firm, yet gentle and courteous to all, he had gained the enthusiastic love of the Tongans, and it was one of the pleasantest sights of my visit to this my best-loved of islands, to see the way men, women, and children ran out as we passed through the native villages to greet "Missa Bélo," as they had named him.

Let me tell you what my friend was like, if I can manage, which I doubt, to make you see him as he was. Through a mist, as of tears, I see his dear face now. He was a magnificently made man, square-shouldered, flat-backed, and with a chest broad, deep, and arched; his head was well placed upon his firm muscular neck, and in the poise of it, and indeed of his whole body, with the strength and lightness of his movements, consisted the greatest attraction of the handsomest man I ever saw. The noble curve of his cheek and chin was unhidden by any growth of beard, though a small mous-

tache shaded his short upper lip; and two ridiculous dimples appeared in his sunburnt cheeks whenever he smiled, with an effect that was mirth itself. His eyes were those wonderful eyes, of colour almost indescribable, gray or blue—I never could tell which—and fringed with long dark lashes, and from them his honest glance flashed out with pleasant recognition or steady scorn, or gleamed with merriment with his laughter.

It seems strange for me to be writing this, yet I could not let his memory pass away, like the scent of a flower that is dead, for the want of a few written lines. A fleeting monument this, perhaps, but, like the rose leaves gathered and dried by a loving hand, it may preserve for some short time amongst his friends the memory of a beautiful life that, like the flower whose fragrance fills our winter rooms, was gathered in the heyday of its bloom.]

What a happy time I am spending here in Vavau I cannot tell; each day we rise with the sun, and, wearing a *vala* and a thin shirt, sally forth into the glory of the morning, and pass through the native village to the cliff, which we descend, often meeting a merry file of girls ascending from the sea. There is no sandy shore here, and we have to bathe from the rocks; the deliciousness of the water I cannot describe—it is warmed by day, and then the night comes and gives a pleasant freshness to it, and it is so clear and unruffled that you can see the bottom in a dozen fathoms. There is a sort of shallow cavern at the base of the cliff, where at low tide the water is almost fresh, and in this we take a final splash before we come out. Strolling back, we gather and eat the most delightful oranges, which we select and knock off from the trees. This morning, when we came back to the house from the sea, I found a native

waiting to see me who had a mysterious parcel that he would give to no one but myself. This proved to be the very identical jacket that had been stolen from the boat at Lefuka in Haapai. It seems that one of the chiefs I knew there, hearing that I had been robbed, ordered that every chest in the whole island should be examined, and that he insisted upon having the jacket returned; and as a chief is still a very great person indeed, the jacket was returned. He sent it after me to Vavau, the canoe that brought it arriving last night, and the man that had the jacket in charge, going to the schooner to find "the tall, fair *Papalagi*," was sent on here to Missa Bélo's, where he found me. The jacket was certainly not worth all this trouble, but I consider the transaction very creditable to the powers that be in Haapai.

After breakfast, which was cooked and served by the one-eyed murderer, as Dick has not been heard of since the other day when he ran away, we started off through Nieafu, Berrill trying to find me a guide who can speak a little English, as he cannot come himself, to take me up a mountain from whence the view was said to be very fine. He found one at last, who was a charming companion, and most astonishingly intelligent; he made the most of his English, and I of my Tongan. Some people, they tell me, learn very soon, and some can never acquire the accent. It requires an acute ear, as every vowel has to be pronounced distinctly, and sometimes in a word three *a's* follow each other, which makes the language difficult; the greatest attention, too, must be paid to the inflection of the voice, as on that and the accent the many different meanings one word often has depend. The road to this mountain was, it is perhaps needless to

say, through the bush, which, as we left the narrow path, became wilder and more tangled. Afi, my guide, went first, breaking through creepers, and sweeping away the large spiders and coarse yellow cobwebs that were spun between most of the trees with his fine woven mat, which he took off for that purpose.

I must here make another little digression—I like little digressions—and remark how painful and horrible seems to me the behaviour of many white people when they are in countries such as this, where the inhabitants are said to be of an inferior race. It has struck me much in India, but even more here, where we have not even that shadow of a right to it that conquest seems to give. The supercilious, patronising, and confoundedly impertinent manners that a white man generally assumes are not only horrible to me but incomprehensible. Do they thus expect to gain the love or respect of the people? It is just the reverse; and I believe it has been chiefly my feeling of affection and fellowship with these Polynesians that has taken me so well all through the islands.

The mountain that I have been climbing during the above eloquent passage is not a particularly high one, but the ascent is very steep, the last part of it being one great mass of volcanic rock, rising almost perpendicularly, but still covered with trees that grow in the many interstices. So thick was the bush all the way up that no view could be obtained,—indeed, the sunlight hardly filtered through until the very summit was reached, but then it was magnificent in the extreme. I climbed an old dead tree to see it better, and below me the whole fertile island, with its intricate series of lagoons and passages, was laid out with almost every detail visible in the bright sunshine. All

Vavau is green, exquisitely green, the mountain heights here and there showing the gray of the rock; and all the smaller islands dotted about this greater one are covered with the same glorious vegetation. The sea on which they lie is of different colours, according to the varying depths and different bottoms, but so brilliant are its azures,—here as pale as turquoise, there as dark as sapphire,—that no description can convey the glory of the truth. The foreground was all of great trees and rocks, and beneath, seemingly almost sheer from where I sat in my tree, the coco-palms raised their plumes above the darker bush. I never saw anything to equal it; no view I ever saw is half so lovely. I had been told that Vavau was one of the most beautiful of the Pacific Islands, but I do not say that—I contend that it is by far the loveliest, and challenge any other to equal it.

It is strange how these islanders give some characteristic name to almost every spot. For instance, we should never think of giving three or four different names to the top of one mountain, yet they do so. The place where I climbed the tree was *Matagatoa* (the "g" pronounced as "ng" always), and another side, where I obtained a glorious view of the passage we came in by, was *Matagafefaci.* I noticed how much keener than ours the sight of these Tongans is; for, although I can distinguish objects at a great distance, I was unable to discover the canoes that Afi saw right out at sea, and which he tried to point out to me; two I could just decern, but others farther out I quite failed to see.

After I had spent some time on the summit I asked Afi whether we could go down the other side from which we had come up, but he said, "*Iki lava,*"

"No, no, indeed." There was, he said, a passage between the rocks down which the natives sometimes went, but where no *Papalagi* had ever been, and he said he had promised Missa Bélo that I should come to no harm, and that certainly I could not go. However, he showed the place, and I said down I should go whether he did or not; if a native could go, I was sure I could. It is not generally that I indulge in this ridiculous sort of bravado, but when there is a chance of going somewhere where nobody else has ever been, or doing something that no one else has ever done, there is a sort of attraction about it which, although very foolish, is very strong. So down, I said, I should go. Afi immediately seated himself, and remarked that it was all very well for me, for if I broke my neck it was all over for me, but that he should never dare show Missa Bélo his face again, and that off he should go to the woods and never come back, and so on, trying to move me.

It is a very strange sort of chasm; a split seems to have taken place in the rock, walls of which rise perfectly straight on either side only a few feet apart, and the descent is awfully steep; but by going very slowly and carefully, and pressing to the sides my hands and arms, by which sometimes one has to swing, I managed pretty well. Towards the bottom, where the rocks became a little broken, great thick natural ropes of creepers hung across, and with the aid of these I swung down several places that, without them, would otherwise have stopped me, and I am sure I never could have climbed back. Afi came down behind me, beseeching me with great earnestness, and very queer English, to take care. Towards the bottom of this wild cliff I found a very lovely fern,

different from any I ever saw elsewhere, and I had to put myself, much to the surprise of my faithful guide, into the most astonishing attitude, jamming myself tight with my back against one wall and my feet against the other, that I might gather some of the fronds, which I took safely to the bottom, though rather mangled. (Which fronds were afterwards carefully laid in paper, and pressed between two cheeses at Berrill's store, as being the heaviest and flattest things I could lay my hands on; and there, unfortunately, they were left.) I arrived at the bottom safe and entire, excepting only my hands and elbows, several pieces of which were left on divers ragged points of rock in the descent. I was in a terrible state of heat when I did get down this passage, but Afi very soon found some coco-nuts, from which I drank before we descended the rest of the mountain. I sat for some little time looking at the chasm, which is called by-the-by *Makamahihi*, thinking what an idiot I was to come down such a break-neck place, with no reward for my pains but the knowledge that I had been a greater fool than others of my nation who have been in the island. We had a very charming walk home, for my guide was very entertaining; but oh, Afi, Afi, I fear your conversation is not improving!

We arrived again in Nieafu in the afternoon, the rest of which I have spent most delightfully with Berrill in his store, learning much of the place and the people. It must be a terrible thing for a man of Berrill's tastes to be so completely isolated, for there is hardly a white man in the place with whom he can much care to associate. He, as most assuredly should I, prefers the natives, for they are certainly gentlefolks, which is more than can be said for the Europeans.

Besides which he is so much loved by the people, and is, too, a man of consideration amongst them, being a chief in his own right, having been adopted many years ago into one of the great Tongan aristocratic families. I could see this; for natives are coming in all day long to the store, and their manners, affectionate yet respectful, show it. It is interesting to see them select the most suitable colours for their *valas;* black has been, for some unknown reason, very fashionable amongst them lately, but is now going out a little. Very many of the girls wear wreaths and garlands woven with the greatest taste, and these they present to you with great grace and some fun; one charming creature gave me a sort of necklace from her neck, woven of her own dusky locks. (I have it now, romantic thought, crammed in a pill-box!) At these stores copra is bought for oil making, where it is packed away for transmission to England, and for this dried coco-nut kernel, which the men and women are bringing in all day long in baskets, they receive so many cents the pound, which they immediately expend in goods, sometimes at the store where they have sold their copra, but sometimes at the opposition one if they are offended in any way. Young men and maidens come in together, carrying the heavy basket between them, and the two then have long conversations as to how they shall expend the receipts.

They are a romantic people, as they should be to carry out the ideal aspect of the place. Berrill has told me a pretty story to-day—how that many years ago a chief in Vavau with his people planned an insurrection against their governor, who was so terrible a tyrant that their lives were miserable beneath his rule. This plot was treacherously revealed to the

governor, who ordered the chief and all his family to be taken out to sea in a scuttled canoe and there left to sink. Among the number thus condemned was a beautiful young girl, who would have been drowned with the rest had not a young chief in Vavau determined to rescue her, he having secretly loved her long. This young man had some time before been out at sea fishing for turtle off the island of Hoonga, which lies a little way to the south of Vavau, after one of which he dived, and, following it through a passage of rock, rose into a great cave that rises forty or fifty feet above the level of the water, the only entrance to which is six or seven feet below the surface. To this safe retreat, known only to himself, the young chief determined to lead the girl, and, making his purpose of rescue known to her, she managed to escape to the woods, where they hid till night-time, when he led her to a lonely beach, where he had a canoe lying. Into this they stepped and paddled off to Hoonga, and he related his intention of hiding her there until they could together escape to Fiji. No doubt he felt sure that she would go with him, for gratitude had quickly turned to love, and she was as willing to go as he to take her. Reaching the great hollow rock, he dived, and she following closely rose into the sheltering cavern, where were necessaries that he had brought there at different times. In the early morning he left his love and returned to Vavau, that no suspicions might arise, but when again the friendly night fell he hurried away to his retreat, taking mats and food and everything that was wanted. This went on for a long time, their only sorrow being that at daylight they must always part, until the lover had prepared a great canoe and loaded it with provisions, and told his

people that he and they would go away to Fiji, and thus escape the tyrant that ruled them in Vavau. They agreed, but urged him to take a Tongan wife; he said that he would find one on the way; they, not understanding him, at his command put silently to sea. When close to the rock at Hoonga he stopped them and told them that now he would find a wife, and dived from the canoe. Imagine their surprise when he had been down a long time, and they had thought him drowned, to see him rise, and not alone, for with him was a beauteous sea maiden. The canoe arrived safely in Fiji, where they lived, perfectly happily I hope, until in a few years the tyrant of Vavau died, when they all returned to their own land and their own people. Is not that a charming little story of love and devotion, and their reward?

Berrill told me all about this cavern, which is large and lofty, and the roof all carved and fretted with rich work of stalactites. The light is reflected from the sea bottom through the passage. I did not go to Hoonga, and even though I had, I am quite convinced I never could have entered the cave, not being such a merman as these Tongans are. The passage is jagged and rough, and in going in all that you have to guide you is the light that catches the heels of your guide; of course coming out it is easier.

Before I leave Vavau I must write of one more day I passed there—I almost think the happiest I ever spent. We arranged last night to go riding to-day all across the island, so this morning we were in the sea as the sun rose out of it, determined not to be late. I can never help writing of the exquisite balmy freshness of these early mornings, when still the grass and flowers are wet with dew, although I know how utterly

I fail in conveying any idea of their inexpressible beauty; the air is sweet and cool; flowers and birds and everything seem to awaken together to fresh life and fresh beauty; and one seems to breathe a spirit of happiness with each breath that is commensurate with the loveliness everywhere around. The distance is veiled with a light silvery haze that hides—one knows not what of glory, and the mountain tops and the far off isles are blue and mystic. But this one phase of its beauty is fleeting; wait only till the sun has gained one half-hour of power, and everything, though lovely still, is changed.

Shortly after an early breakfast Berrill's two horses were brought up, and we saddled them ourselves, as it is a risky thing to leave the divers bits of rope and string, that often take the place of straps, to anyone else. We were joined by Stodart from the schooner, and some boy that he knows here, and we mounted and were away. Directly I begin to write anything about this exquisite island I feel my enthusiasm rise, and I have most strongly to repress it, as I know not where I should stop if once I let it get the better of me. The ride to-day could not well be surpassed; we started through the pretty native town of brown houses and entered upon a broad path, bordered as usual with stately palms. Every now and then you see some of the trees with a rough piece of mat tied round the trunks, which shows that they are tabooed for some reason, and no one may gather the nuts. After a man dies I believe it is a general thing to taboo his trees for a time, perhaps that he may have food the first year in Bolutu, whilst his crop is growing there.

Wherever the turf is worn away the road is seen to be of a deep rich red, for the soil is volcanic, and this

forms a charming contrast with the bright and varying green all round. Yams, *talo*, and bananas are planted, and these, with the other fruits that this prolific soil and lovely climate produce in teeming profusion, are enough to feed the whole population. Fowl and pigeon are common enough on the land, and fish is abundant in the sea; can one be astonished, therefore, that this people are idle, and little inclined to labour for luxuries they do not require? As we rode along these green glades our cavalcade looked quite picturesque,—all the men in white clothes, broad shady hats, and bright coloured scarves round the waist; everybody here wears this sort of *cummerbund*, for, being lightly clad, it is advisable to have something on to prevent the sudden and dangerous chills that one would otherwise take.

Berrill and I rode together, and the two others were cantering on in front or often lingering behind, as innumerable accidents happened to them in the way of buckles and straps becoming unfastened, whips dropping, hats blowing off, and so on. When going at a good pace you have constantly to stoop down almost to the level of your horse, or you would be unable to pass under the low arching leaves of the young coco-palms; a blow from one of their solid centre ribs would knock you from your saddle. We passed through several quiet-looking villages, with the houses grouped charmingly beneath large trees and sheltering in their shade, with great groves of orange trees planted all about, and grand trees of the banyan tribe growing above them. For two hours we rode thus along these lovely paths, sometimes up and down hills so steep that ordinary horses would scarcely have ventured on them; one of these seems fixed in my memory in the manner

that some scenes are. It is a steep decline, very moist and muddy, for it is so sheltered by the trees that scarce a sun ray can reach the ground, save here and there in a few patches of intense brilliancy. The trees on either side the pathway are great dark-leaved glossy shaddocks, and from the gloom hang down the grand orbs of their fruit; in the moist ground most delicate and filmy ferns thrive, and strange and gracious growths; and there in the sunlight, where the avenue is broken, is Berrill turning round, one hand on his horse's back, calling me to come on. Riding thus we reached a place where a white man lives, and here we rested in a little mat-lined room, and tried to get cool, and here too we regaled ourselves on a great pile of most delicious oranges that the native women about the place sent in. These Vavau oranges are delightful; they are a dark rich green in colour, and as the skin, which is rather thick, contains a very acrid secretion, the women take a knife, and, different from us, remove all the outside skin by peeling *away* from themselves, instead of towards themselves as we do. This leaves the orange with only the white covering, the top of which they cut away, and you have a sort of bag full of the most delicious juice.

From this place we walked to the *Liku*, as the eastward part of the island is called, our little host himself acting as guide for the mile that lay between his house and the shore. We were ascending slightly all the way, and emerged from the bush where the light was dimmed by the thick growth of the trees, into the full light of day, on to a great cliff that rose a couple of hundred feet above the sounding sea.

The great cliff that towers above the beach sweeps in a grand curve boldly to the north and south, the

far distance being hidden in a mist of heat and reef-broken spray. The cliff is of a white and dazzling rock, save where in places it is covered with the beautiful vegetation that clings to every cranny and lives on every ledge; at the foot of this lies a broad margin of golden sand covered with huge stones and boulders, detached from the heights above, and great rocks fantastically shaped, sometimes arched, through which one catches strange glimpses of the sea; generally round the feet of these rocks are clear pools, left by the tide in the hollows its waves have made in the sand. Beyond this golden bar lies a stretch of shallow sea, of tints as varied and as bright as pearl, then a line of white heaving surf dashing upon the barrier of the reef, and then, beyond it all, the broad blue expanse of the open Pacific. My friend and I had scrambled somewhat higher than the rest, mutually wishing to be apart from them; where we stood, facing seawards, in the tall herbage, was an old deserted Tongan burial-place, surrounded, as they invariably are, with great sad *casuarina* trees, their sweeping boughs and tassel-like foliage, which sheltered the tombs, seeming to close us in. I always think these old native graveyards are very beautiful; there is an evident care about them, which speaks of the regard for the dead still felt by the living, that mutely touches one. They are sanded and kept clear of wild weeds, and all the tombs are beautified and marked with a layer of small black stones, bright shells, and coral. In some islands of the group, where no stones are found, the mourners of the lately dead repair to the volcanoes, Kao or Tofao, where they, amidst the ashes on its shore, and sometimes amongst the very smoke that rises from the living fires at the summit, seek these pebbles for their graves.

From the height of the cliff on which we stood a sort of narrow pathway creeps zigzag to the shore, and down this I said I should go. Berrill, poor old boy, was too done up to come; I left him — it almost seemed an omen—resting amidst the graves, and the others would not risk the descent, so down I went alone. The water in the sunny shallows was so hot that one hardly would believe that anything could live in it, and yet every little pool was swarming with life; a little farther out I found the deeper water refreshing and almost cool. I waded out wearing nothing but a broad brimmed hat, which floated on the surface when I dived beneath it to visit for a time the home of the corals. How bright they are one scarce would credit; some are dazzling white, some have their branches tipped with brilliant blue, and others are yellow and purple and red; then there are madrepores, and a thousand gorgeous zoophytes, that make the water glow with every tint and every hue of terrestrial flowers, all these last living and waving their slender arms in the clear warm water. Then there are gay fish, lustrous with seeming gold and bright enamel, and I would give anything to be able to describe them, but describe them I cannot. Returning to the land, with my feet a little sore from walking on the coral, I dressed myself,—a thing of little difficulty here, only two thin garments to put on,—in the shadow of a great white rock, and, scrambling up the cliffs, I found Berrill waiting for me, the others having gone on ahead; he and I returned alone.

[I shall never forget that last walk we had together; every tree almost is impressed upon my memory by something that he told me of its virtues or its uses. It was a drowsy afternoon, and every-

thing lay basking in the radiance of the light and the fulness of the heat; only the grasshopper "chirred"—all else was silent; and great lazy butterflies floated by, their beauty and their slowness both their safeguards. No cloudlet marred the blue perfection of the sky; no breeze there was to stir the lightest leaf upon the trees; all nature seemed to sleep, and we alone to dream.]

Before we reached the houses we heard the *too-too* of the *tappa* makers, and entering the open place of the village saw eight or ten women at one great tree trunk, each with her strip of white cloth before her, all beating away upon them in perfect time. They had boys at either end, who were vigorously beating the trunk in a sort of cross time, making a queer resonant music. A huge piece of the finished *gnatoo* was being painted by a woman with the rich patterns with which they decorate it, in the deep browns and black of their native dyes. By the side of these native women, a little way off, the young men were playing a game the name of which I forget, which consists, as far as I could discover, in throwing, in turns, a small disc of coco-nut shell down a long level mat, each side trying to knock the discs of the other off the mat. After watching both the work and the play for some little time, we returned to where we had tethered our horses, and found that our host had prepared some refreshment for us, of which the coffee that we drank was native grown. Very good I found everything but the sentiments of the man himself; he looks upon the natives as created—he said so—especially for the benefit and behoof of us noble white men; they are to be used by us in every way as servants and as purchasers of our rubbishy goods.

We are to make money by them, and then, their mission here being ended, "the Almighty will sweep off from the face of the earth these wretched savages, and we shall assume their inheritance." No white man, he went on to say, can possibly be wrong in a dispute with them, and no Tongan ever right in a dispute with us. Both Berrill and I waxed very wroth at this, rather an exhausting process with the thermometer at 90° in the shade. I fear almost that my indignation got the better of my coherence when I told him what I thought on the subject. Just think of a low blackguard like this (oranges and coffee notwithstanding, I will say it), living upon a people as he does, sponging upon them for everything he has, selling them goods at three times their probable value, thrusting himself into their beautiful country, and enjoying all its advantages, daring to speak in this manner. I wish I had given him a dollar when I left his house—I should then feel no qualms in attacking him; as it is, I will say nothing more about him.

From there we rode off again to a charming village, Lé Matua by name—which being interpreted means, I believe, Whale's Tooth—to see some native friends of Berrill, who expected our visit. The road to it is but a narrow pathway, along which we rode in single file, through the bush as usual; the trees are covered with magnificent creepers falling from the boughs in splendid festoons of green; they are just beginning to flower again, and shortly will be one mass of bloom. I rode slowly with Berrill, who was out of breath with one or two quick spins that we had had; the other two had gone ahead, but we caught them up in a mile or two, as they, not being great horsemen, had been stopped by the fence at the entrance to the village. We jumped

it, but the sorry hacks of the boys had to scramble over it as best they might. We found the *fale* of Berrill's friends all swept and garnished ready to receive us, and at the entrance some boys took our horses from us and tethered them safely at a distance.

The women were weaving wreaths and *cessis* of leaves, flowers, and scented seeds, for our decoration; they have very great taste in arranging flowers. I wish I could have preserved a lovely wreath of white single gardenias and purple seeds that one of the girls made and hung round me. The floor was littered with bright blossoms, which the women swept aside for us to sit beside them. Knowing that we were coming, our hosts had sent out for the prettiest girls in the place to come to entertain us, and it was one of the brightest home scenes I ever witnessed to see these lovely girls weave their wreaths and present them to us. Some of them, the weaving finished, came and sat close by to fan us, or to make their little cigarettes for those that wished; others prepared a bowl of delicious orange *kava*, while the mistress of the house went out to the oven to prepare the feast. How lovely some of these girls are I fear I cannot tell, or how sweet their manners and their liquid words.

> "Dusky like night, but night with all her stars.
> . . . . . .
> With eyes that were a language and a spell,
> A form like Aphrodite's in her shell."

The master of the house, an old gray man, talked much with Berrill, who says that he has always found him, all the years he had been in Tonga, a trusty and a faithful friend. He is, he says, a man of great under-

standing and of noble thoughts, a keen intellect, and a kindly heart. His old eyes are growing dim now, and are much inflamed, and he asked me if I could give him anything to do them good. I prescribed a lotion of borax, which Berrill said he would get if in any way possible, though he feared there was none in the island.

This old man had both his little fingers missing from his hands, and, asking how it occurred, Berrill told me of the following curious custom. Years ago, when the old gods of Tonga still received credence, and when the chiefs themselves were almost considered as such, it was the custom, if a great man were ill, for his relatives to offer up, as a sort of voluntary sacrifice to the gods, one or more joints of their little fingers. This custom was called *tootoo nima*, the meaning of *tootoo* being to cut, and *nima* number five. The old men say that the operation was not very painful; a sharp stone was placed beneath the finger with its edge just where the division was wanted, and a heavy blow being given with another stone, the thing was done. The very roughness of the operation stopped much loss of blood, and the stump soon healed. It was generally done to children. In case of the sickness, in former times, of very great persons, this was not considered sufficient to mollify the enraged gods, and children were sacrificed by strangling for a propitiation. It must be remembered that all ills in this life were considered as punishments sent by the gods for evil actions; they were not then debased enough to have invented an eternal future one, and it was thought by these poor savages that these innocent lives offered up might be an atonement for their sins.

While we had been talking the banquet was being

cooked, and when ready, the women entered with fresh green banana leaves, which they spread upon the floor, and smaller pieces were handed to each of us for plates. Yams and *taro* were the chief vegetables, and with the fowls they served baked sweet bananas, a strange but very good mixture. The family did not join us, the young boys waiting on us, and the pretty girls continuing to fan us all the time to keep away the flies; and when we had finished, a wooden bowl of pure water was handed round for us to wash our hands in, a necessary sequence to a Polynesian feast.

Before we left, the chief lady of the house presented me with a most beautifully made comb of her own manufacture as a sort of souvenir. The Tongan women have always been celebrated for their works of art; they have always been held in greater respect than with most savage races, and were never expected to work as hard as the men; they therefore had always leisure time for such productions. These combs are sometimes a foot long, and are formed of long teeth made from the mid-rib of the coco-palm leaf, woven together with hair or fine thread in beautiful designs. I hope that I shall be able to return here from Samoa; if I do I shall certainly accept the invitation that these charming people gave me to visit them, and which Berrill says they really mean.

It was beginning to be evening when we mounted to return—a most lovely evening, and the view we had of the island, for Lé Matua stands high and very open, was beautiful in the extreme. All the inhabitants turned out to call their *ofas* after us, and many of them flung their wreaths and *cessis* to us as we passed. How delighted they were—I was pleased to see it—when Berrill cleared the fence at the village entrance

with a bound, and neither my horse nor the others would face it. They like everything that Missa Bélo does to be best. We had a lovely ride back to Nieafu in the evening's cool; indeed we did not get in until long after the short twilight had faded and the glorious starlight night was upon us. How we galloped along the dim paths, stooping low to escape the overhanging boughs that rustled as we passed!

When we two came into Nieafu, Stodart and his friend being in advance and going off together, we found the native town in places bright with firelight; there had been a great shark hunt, and now the people were feasting on the flesh. They charm the sharks with a strange wild song, which they sing in chorus from their canoes, and the fish, hearing, ascends and is caught. A missionary some short time since remonstrated with them for this practising of wicked witchcraft, which he denounced as being useless, as well as savouring of the devil; whereupon his audience said that if he would go with them some time, they would convince him of the power of their charm. So out they paddled him silently, and no shark was seen, until at last they chanted altogether their song, and almost at once the black fin showed.

The end of our ride found me quite fresh, but my friend is terribly exhausted with the day's exertions; he came in bathed in perspiration, so after dinner, which neither of us wanted, I made him lie still in a hammock, while I sat by him in the verandah. We have talked much and solemnly this last night of meeting, and only an hour or so ago Berrill was saying, with a sad little smile, that he was one of those, he thought, whom the gods love best. I tried to laugh it off, and said it was not true, but his hollow cough gives

me the lie. The night is still, not a breeze to rustle the lightest spray of the dense foliage around us; the moon is at its full, and every leaf of the tall palm grove is sharply shown against the luminous sky. Through the black tree trunks here and there we can look down upon the moonlit sea, where, motionless, lies —a black speck on its silver—a solitary canoe and fisherman; nothing moves save for an instant perhaps, when a noiseless flying fox flits athwart the sky, and we too have grown silent in accord with all around us. Suddenly from the shadow in front of the house rises the weird pathetic music of the native *fango-fango,* breaking softly on the silence of the night. Short and sad are the airs they play, in plaintive keys, with strange odd intervals; and the music dies away so softly, as the one deep breath of the player grows scant, that one scarce can tell when perfect silence takes the place of sound; as each sweet phrase draws to its gentle close, one almost holds one's breath to catch its last faint accents.

It was a Tongan poet who came this perfect night to serenade his friend. I think I never heard anything that charmed me more than this token—a slight but very touching one—of their regard for him. When the music ended I ran out to the front, where, amongst the oleanders, I found the white-draped figure of the musician. Such a splendid fellow, one of the finest Tongans I have seen, with regular features, lustrous eyes, and a magnificent muscular figure; he is one of their very finest performers, and is poet and musician in one; his broad deep chest is admirably suited for playing upon the *kofi,* for the entire air is completed in one breath. The *fango-fango,* as the nose-flute is called, is formed of one piece of bamboo, stopped at

either end with the natural joints; they are of varying size—this one was about sixteen inches long and two in diameter; there are four holes along the top and one underneath. They blow, taking a very deep breath, into the end hole with one nostril, tightly closing the other with one finger, and all the notes seemed to me to be formed by the strength of the blowing, as the fingering is not intricate.

Berrill's serenader is a thorough musician, producing wonderful effects by plugging different holes with bits of *tappa*. He had a companion with him, and I brought both of them into the verandah, where Berrill gave the musician two little Jew's harps, whose shrill tones he changed to mellowness by wrapping a thread round the tongue of each, and the music that he produced from those miserable things was marvellous. The tunes of course were native, and very beautiful, I thought. He could play two harps at once, holding one to his mouth, which he played with a finger, and the other one held in his teeth, which he played with his tongue, and the effect was astounding. Afterwards he and his friend played a duet, snapping their fingers as a sort of rude accompaniment, the chief musician introducing a strange variation by playing the instrument with his tongue; and placing his hollowed hands over his mouth, he slowly opened and closed them, which made the sound to swell and then to die away, as though it were miles distant. I have asked the musician what I can send him from Samoa, and Berrill tells me that the one thing for which his soul pines is a large brass Jew's harp, which he cannot get in Vavau. I have promised to get it him if I can possibly find one in Samoa.

It was almost midnight when they went away, and now the house is quiet as I sit writing in my

room; all the others are asleep. Across the harbour the moon is sinking behind the night-dark hills, yet there are still some serenaders lingering, lover-poets, with their soft-tuned *kofis*, making sweet music to their loves; and I am full of regret that to-morrow I must leave this enchanted isle. Never have I loved a place so well, never have I met with greater kindness, and never have I found a truer friend than here. No people that I have ever lived amongst have I found so kindly, hospitable, and good as these simple Tongan folk. How strange and dreamlike in after times, when I am home, will seem this sojourn here. Shall I always remember, I wonder, this beauty now around me, or will its scenes gradually and by degrees fade completely from my memory? I trust not, but hope that it

> "... Still will keep
> A quiet bower for us, and a sleep
> Full of sweet dreams, and health, and quiet breathing."

Good-night, good-night; I am so weary, completely tired out, that I cannot write more; besides it will soon be day, and I have arrived at the poetry-quoting stage, which is a sign that it is time for me to go to my mat and fall asleep.

Next morning at sunrise we were aboard the schooner; I have walked my last on Tongan soil, as we are sailing straight for Samoa, the Navigator Islands. How sorry I am I cannot say; all that I hope is that I can manage to return.

Berrill accompanied us some way down the harbour, and we landed him at last on a narrow strip of sand beneath a grove of palms. He stood there in the early morning sunshine waving his hand and calling *Ofa, ofa,* "Farewell, love," until a tall and

rocky headland that we rounded hid him from our sight.

[This picture of him, clad in white, standing there, straw hat in hand, his bright face smiling, and the breeze just lifting the short curls of his hair, is the last my memory has of him. I never saw him again. I had afterwards one or two sad letters from him, the last to tell me that he had completely broken down in health, and that he wrote to say "Good-bye." And then one Sunday night after I had returned, when the windows of the great church had turned that deep deep blue they gain as the night sets in, and when gloom had fallen in the aisles amongst the lofty arches, I heard that he was dead. I was standing in the emptied porchway looking out into the quiet sky, where, "in that green light that lingers in the west," the thin silver rim of the crescent moon was floating, and thinking of the glorious night that was falling in those islands so many weary leagues away. In the dim chancel the organist was playing the glorious music of the *Stabat Mater* on the grand and sweet-toned organ, as a friend of Berrill's family, who had searched me out, came up and told me the whole sad story — how he had at last with frightful rapidity grown worse, and had determined to leave Vavau in search of medical aid; but the disease made such rapid strides that he was unable to find it; and one hot night at sea, attended only by his faithful Tongan friend and nurse, he passed quietly away to where disease is not. They told me that the sea received him—not all of him, not the him I loved—only his beautiful body: his lovelier part I shall meet again and know, I trust, "when the sea gives up her dead."]

CHAPTER VI.

SAMOA.

SINCE my last entry we have had a lively time on board the schooner, as we have been nine entire days in reaching Samoa, instead of three at most, as we ought to have been. The day we left Nieafu was such a calm that we only just cleared the harbour, and all the next night we scarcely made any progress. This was very annoying, as we might as well have stayed in Vavau as have sailed only to lie just off the group for a day or two. The dreaded day that was foretold for the hurricane passed off in perfect calm, with only a thunderstorm at night, which I found an uncomfortable proceeding, as I was completely wet through before I knew that I was awake. For two days we had these wonderfully heavy storms of rain, which are the most trying things that can happen during a cruise in so small a schooner as this, for there is no accommodation in the cabin, and it is miserable to be on deck. Had the crew known that I had "bones" aboard, they would have put all this contrary weather down to their evil influence, and would have insisted upon their being thrown overboard, as a sort of dried-up Jonah. The skipper foreseeing this, and being a man of sense, had told me to smuggle them on board; so I packed the Tongan scull that Berrill gave me at parting—cheerful gift—in a large box of oranges from my favourite tree,

and the other rattling fragments in smaller packages, and brought them safe and unobserved to the cabin.

Remember this—be guided by "one that knows," and let any one who may be going for a cruise in the Pacific be warned against taking in coral as ballast. We took in a quantity at Nieafu—more is the pity; the lucifer-match smell of it is bad enough, but the countless millions of cold and clammy flies that you get with it are a thousand times worse. They are indescribably disgusting—dozens of them on you at once, and no escape possible. From daybreak to sunset they are on the rampage, whole battalions of them doing their morning drill upon your hands and face when you awake, and all day long you have half a dozen at each eye and ear and nostril till you are almost frantic. I, being of a poetic and inventive mind, have improvised a species of cage, or crinoline, which I have covered with bright green muslin from the ship's stores, taken out most probably for the heart's delight and adornment of some dusky maiden; and beneath this bower I engauzed and enshrouded myself, hoping thus to escape. Oh deluded youth! remember man is born to disappointment. I generally found myself worse off than before, as usually some treacherous or Judas-flies managed to get in with me, and I never could get them out.

Most days we had good fun with shark fishing, and caught many of those very simple-minded fish. They really deserved to be caught for being foolish enough to swallow such very—even to ordinary piscine intellect, which we are told is none of the highest—palpable hooks as we ensnared them with. One morning we had five or six following us, and caught two at once; if we had hooked a third I firmly believe

the schooner would have been pulled the other way, or at least brought to a standstill. The lazy way they swim through the water would lead you to think they cannot go fast, but let them only see a bit of pork and their speed as they dart at it is really astonishing. It is very easy to get bait; all we have to do is to move the wash-hand basin from the harness cask, which is lashed to the steps at the break of the poop, and, holding our noses firmly, make a dive for a piece of meat. Billy Mustard, the mate, being of a dyspeptic and soured nature, not liking to see us enjoying ourselves in this innocent manner, informed the skipper that we were consuming the ship's provisions at a terrible rate, and was told for his pains not to be a fool, and to go to blazes. (This is a feeble transcript of the forcible original.)

A truly great mind is alway fertile of resources of amusement, so one afternoon, having nothing else to do, I determined to go "forrad" and have my hair cut, as ever since I have been in the tropics it has grown at thirty Mrs.-S.-A.-Allen-power. I placed myself under the hands of Tom, who is reported to be very good at the shears. The chief charm of the performance lay in its excitement, for as we were rolling heavily there was a very good chance of having one's ear clipped off. I seated myself on an overturned bucket, just behind the galley, and hung on to a rope to keep myself upright; Tom was behind me armed with a huge pair of scissors that the cook has produced from somewhere, and every time that the roll of the schooner sent me backwards Tom made a peck at me with his shears and snipped a lump of hair off. I received a good many prods and stabs in the back of my neck during the proceedings; but in time, about

an hour and a half, most of my hair was off and lying on the deck around me, except such of it as had gone down the neck of my shirt. Derisive cheers and laughter greeted me when I came aft. Gilbert, offering consolation, says it is not so *very* bad, but a trifle capricious—as indeed I feel it is.

We passed Boscawen and Keppel Islands one day; the former is a large volcano, which looks just like Kao, only it is not so large. Now that is what I call a clear and explicit description, and one which I hope is understood. Boscawen has no inhabitants, but Keppel has a few. In former days they owed allegiance to Tonga, but in these degenerate times I do not know whose they call themselves, and I do not suppose it matters much. On the masthead one night a fire-ball appeared, which disturbed even the skipper, it is such a dread portent; two, they say, are, on the contrary, very lucky. How I do bless these sailors' superstitions. For one or two nights lately, when I have been sleeping on deck, I have been roused by Johnny or Tom or Charley, who, leaving the wheel for a moment, come and poke me in the ribs to wake me up, and say, "You're sleeping full in the moonlight, and your face 'ull be all crooked if you don't mind;" which they so firmly believe that they will not be satisfied till I have moved my rug into the shadow; and then, probably when we are on the other tack, it all happens over again. On one occasion Johnny bore down on me and woke me by saying, "You wouldn't believe me, and now you've done it this time; your face is all drawed of a side." I must have been going through some marvellous contortions in my slumber, for my sweet smile—I feel assured that I smiled, though it was the second time that he had aroused me that night—was perfectly straight when I spoke to him.

For three whole days the land was in sight, and we could not get in—such a continuance of head winds, contrary currents, and perverse swells I never came across. It is annoying. I can understand and pity poor Vanderdecken, who, some years ago, used very strong language on a somewhat similar occasion. I had written a farewell letter, and was just preparing a Guinness's-Dublin-Stout bottle in which to send it home, when the wind veered slightly and gave me fresh hopes. All last night was sweet with the scent of the flowers off the land. I have read about perfumed breezes in books, but always considered the statement a purely poetic license; but the land breezes about Samoa seem to verify the statement. I thought I could recognise the scent of the *pandanus*, which grows so frequently on these shores, across the nine or ten miles of sea; but although these perfumed breezes were so delicious, they were keeping us from land.

This morning, heaven be praised, when I came on deck I found the wind was favourable, and at about ten o'clock we were lying safely anchored off Apia, the principal town of Upolu, one of the two largest of the Samoan islands,—such a beautiful place, quite unlike any other that I have been in; it consists of really great mountains that rise to a height of more than 4000 feet; they lie a long way back from the sea, one green hill rising behind another until the great central mountains are reached. All are forest-covered, and everywhere the growth is luxuriant, save in some few precipitous places where the gray rock is exposed, rugged and grand. Far away up amongst the hills falls a thin silver thread, which they tell me is a great cascade, and this forms the rapid little river that runs into the sea some short way up the beach, and which is in great demand for the water-

ing of ships. I shall try to reach the waterfall, but I am told that it is a long way off. Apia looks from the sea a much larger place than I expected or hoped to find it; there are one or two churches, and a row of houses and buildings, all placed amongst the trees; there is, too, some shipping lying here, and a couple of gunboats to protect the European interests in the island.

Directly we were anchored in the harbour we were boarded by a whole crowd of natives and of white men too, the latter all clamouring for provisions, of which, I am sorry to say for Gilbert's sake, we have but little left. It is a very risky business bringing a cargo of goods to these places, because another trader may have come here just before you and stocked the market, when all you have left to do is to take your goods much further afield, or sell them at very reduced prices.

Stodart has been telling me for some days of a Samoan here in Apia, named Leapai, who from all accounts must be a very delightful person. This said man came on board one of the very first, having paddled out to meet us in his little canoe. He is a magnificent looking fellow, over six feet in height, with a handsome face and charming expression, and seemed truly pleased to see Stodart again, as well he might. He invited him, and me too, to go to his house this evening. Besides being such a splendid specimen of a Samoan, he speaks English well, and I foresee much curious and interesting talk with him. He tells us that the civil war is still raging between the Old Party and the King Party, as the different factions are called, and that there seems as little chance of settlement of it now as ever there was.

After much talk with many people, Samoans and

whites, I have at last arrived at what I believe is a correct knowledge of their differences, and this is it in short. For very many generations all Samoa was governed by one dynasty, the Tupooa family, and under them the country throve, until unfortunately Samoa was invaded by the Tongans, who were seemingly gaining ground, till there arose a great Samoan chief who conquered them and drove them back. The descendants of this man, who claimed and exercised a partial sovereignty, are the present chiefs of the so-called King Party, and between them and the adherents of the Old Royal Party war has raged for forty or fifty years. There is a constant fighting going on in Savaii, the largest island of the group, which is far wilder than any of the others, but whether the cause of war there is the same as it is here I cannot find out. There is, I think, a true love of fighting inherent in the Samoan nature, and to indulge this taste the war is kept up. I do not mean to say that Samoans are as a rule exceedingly brave or fond of risking their lives in warfare; but the desire of gaining a head, to do which is the chief ambition of a young Samoan's life, is so great, and the thoughts of strutting before the admiring women as a great warrior is so delightful, that sooner than not have the chance of so doing they will fight. There seems to be almost a morbid desire for notoriety, if not fame, among the men of this people, and it is this feeling that has prompted them in times past to commit many atrocious and cruel acts, and this is still a great influence amongst them. A number of the Old Party will sally out and perhaps surprise a town or village of the King's Party, and, rushing in upon the sleeping place, will seize and hack off the heads of as many men as they can slay, and run off through the night to where

flower. It is not the women only who wear flowers: I saw many young men with crimson hybiscus stuck jauntily behind the ear, as one sometimes sees the men in Venice wear a flower. I noticed many, too, with single petals of flowers stuck on their cheeks. I do not know whether this queer decoration is a regular custom, or whether they were put on for some special occasion or game. I am glad to see here this universal love of flowers: the women nearly all have wreaths somewhere about them—round their necks or waists, or anywhere they can put them. Like the Tongan women they wear a petticoat to the knees, and besides this a missionary-imposed garment, called a *tiputa*, that is made of a strip of cloth, with a hole in the centre for the head to go through, so that the ends hang down in front and behind, forming a sort of sleeveless jacket open at the sides. A good many of the women and children paint their faces with any bright colour that they can get; this, it must be said, does not improve their appearance.

I have not actually *done* very much since I arrived here this morning,—that, perhaps, is hardly very necessary when one finds oneself in a new country with everything fresh around one; but I did go to call on the British Consul here, Mr. Hicks Graves, soon after I landed, and found him a very pleasant man,—of the kind that one would never expect to find in a place like this, and where, although he most certainly does the work well and conscientiously, yet he seems so terribly out of place; not caring to associate with the whites of Apia, he has, perforce, to live a very solitary life. One can think how glad he is when a visitor comes to the island with whom he can talk of home and home-doings. It was very hot, and he asked me

to go with him and have a swim. I was glad of the chance, and we walked through the town all along the beach to the little river I spoke of before. The bathing-place lies away in the bush, which is very beautiful and of quite a different character from others that I have seen. The whole island is so hot and moist that everything grows with the greatest luxuriance and vigour; the forest trees are very grand, and are matted together with most graceful creepers. Everywhere are the loveliest ferns; some there are that cover thick the ground, others that clothe the tree-trunks with soft green leafage; some ferns that are trees themselves, and are covered in their turn with graceful creeping clinging ferns, of smaller and more fragile growth. The river is not broad, but is deep and strong, although it and the silvery thread of cascade I spoke of as gleaming among the mountains are one and the same; the waters, that fret in their impatient youth and dash themselves from their native mountains, glide here, in the shade of the bush, peacefully at last through the ferny reaches to the sounding sea. What a glorious swim it was!—the water cold and soft, and, above all, fresh. Some little way up the stream it glides down a picturesque waterfall, between two walls of rock on which grow ferns and mosses and beautiful arborescent plants, from whose boughs trail masses of parasites and creepers, and an orange tree with ripe golden fruit overhangs the fall just where it caught a gleam of hot sunshine, and gave a bright touch of colour amidst the tree ferns that grow tall and thick just there. Swimming up to the waterfall, one can dive from a rock in the midst of it and be carried swiftly down by the current till stranded on a little shingly bank some way farther down.

We walked back to Apia along a glorious bush-track, and every moment I saw something that I had not seen in the other islands. The butterflies are not all the same; there are here some exquisite blue ones; and the birds too are different. There is one gorgeous little creature, called the *Tolai*, whose breast is pure crimson and its wings jet black, and it gleams and flashes amongst the bananas with most beautiful effect. I cannot help speaking again of the banana, it is so very lovely, its leaves so grand and graceful, and with that charming translucent property that the leaves of our own beech-trees have in early summer in the sunshine. Think how beautiful this little honey-eater, the *Tolai*, is when flashing here and there in the soft green light of the banana groves! We were overtaken by two strapping Samoan lads who had been pigeon-catching in the mountains, whose birds we examined, and the consul purchased some for cooking. The plumage of some of these is very fine—green and crimson, and with a wondrous metallic sheen on the head and neck; they are excellent eating, and are so gloriously plump that if you shoot one at the top of a tree and he falls to the ground, he will split himself out of pure lusciousness and good feeling.

In the evening I and the fellows from the schooner went out to see some of the curious whites that have settled here. With all due respect to those very few whom I can respect, they are a queer lot. I visited, however, one house where I was received very heartily; the family has been established in Apia as traders a long time, and knows something of the people in an uninterested and superficial sort of way. Here there was a piano, with a good many notes in tune, and at this we sang songs with howling choruses, and I played all

the liveliest and tuniest "pieces" that I know, and then a bit of Schumann for my own delectation, for it was a pleasure to feel even this piano's notes beneath one's hands again. This last performance was thought very strange by the daughter of the house, who played the piano herself in a Samoan sort of way. I said that it was a sample of the new school of music, and she remarked that once, when she paid her visit to Sydney, she had then heard "some very strange music indeed, by a man with such a funny name. Let me see, what did they call him? Oh, I know;" then very slowly, "it was Felix Mendelsshon Bartholdee." And such is fame. I told her that I too had heard music by the same composer, and played her some, which she said was "pretty." The lady of the house, a kind woman too, regaled us with cates and a delicious pine from the garden before we left.

Although it was late when we started for the hotel, Apia was still wide awake and stirring about the hotel and dancing-places. I must confess it is a lively place. It has earned, and I almost think deserves, the name of "The hell of the Pacific." All the scum of Australia once floated to Fiji, but since it has been annexed to England, and a comparative state of law and order introduced, it has become little suited to men of a certain stamp, and they have in consequence migrated here; so that I fear communication with the whites, notwithstanding the efforts of the missionaries, has certainly on the whole been detrimental to Samoan morality.

Stodart was telling me to-night, as we walked homewards along the beach, that the last time he was here five heads had been brought to the king's house just outside Apia, and that, strolling that way, he had seen

and been sickened by the sight. News has arrived here to-night of a head that has just been brought in, of a poor old man who was surrounded and slain, but doubtless the exploit has made some hero's fame.

One of the very first days that I was in Samoa I determined to visit the fortress of the King Party, which lies some way out of Apia. There is a wonderful attraction about the sound of "the seat of war," and as I had never had the chance of visiting one before, I determined upon seizing this small opportunity. There is, too, something much more interesting in a war of this kind, where individual courage and prowess are important factors in the fray, and where it is not a case of so many men killing so many more from such a distance that they can hardly see one another, and men that perhaps do not know at all what they are fighting about.

I started directly after an early breakfast, with a native boy as guide for the first part of the way. He was a very communicative but not very interesting companion, for although he told me much it was all in an unknown tongue, and therefore completely thrown away upon me; but as he smiled and laughed a good deal, and I did the same, we got along very well, although the proceeding was rather idiotic. We walked up the beach a short distance past the consulate, where the little houses of Apia end; there we turned off into a small jungle, very moist and intensely hot, and passing through this we found ourselves in a dismal mangrove swamp. This I had to cross.

I do not think many people understand what a mangrove swamp is. It is a low lying sort of estuary into which at high tide the water sweeps; from this the mangroves lift themselves on ropy-looking roots; the

bushes do not grow very high, but the foliage is thick and beautifully green. When the tide is out the ground is all mud,—black, evil-smelling mud; to-day when we arrived there the mud was left exposed to the sun, except in places where there were sluggish dirty streams of water flowing slowly. Here I had to roll my spotless trousers up to my thighs, and, taking off my shoes and stockings, boldly wade in; my boy, tucking up his *lava-lava*, plunged almost to his middle in the warm, oozy, nasty mud. The swamp is really very interesting to cross, as it swarms with little crabs of all the most brilliant colours, bright red, blue, yellow, and variegated too; they are most extraordinary looking fellows, as they have one of their front claws enormously large, so huge is it in proportion to the rest of the body that it gives them quite a lob-sided appearance; this claw they use for almost every purpose. The ground, in places, was quite bright with this gay crowd, and it was funny to see the way in which they disappeared down their little holes when they heard our approach. In the small pools left by the tide were shoals of little fish, which, as we splashed through the water, jumped along its surface on to the dry mud, and using their two side fins as legs, walked very quickly amongst the roots of the mangroves, and so vanished. I saw hundreds do this, and I must say that it surprised me to see fish thus voluntarily leave their natural element and betake themselves to the land.

I found the best way to get through the swamp was to walk in one of the streams of water, as their beds were generally shingly and firmer than other parts of it. Half way across we met a party of natives loaded with burdens, who very politely stepped out of the tepid water into the yielding mud at the sides

that we might pass. When I was across this dismal place, which is, I suppose, about a mile wide, my boy turned back; he being one of the Old Party's adherents dared not accompany me any farther towards the King Party's camp whither I was bound. He returned to Apia after pointing out the path I was to take through the bush; and I, having washed my legs clean of the black mud that they were covered with, and having put on my boots, started off alone. Just where the land became solid again I found two or three little houses, and in a pool a whole party of girls and children disporting themselves. Was not there a fluttering of garments and much laughing when I came upon the scene? I found the track into the bush that I was to take, and along this I boldly struck; it was very slippery and muddy, and there were frequently trees lying across it, as a sort of rough and ready barricade, which were tiresome to climb over.

I found a native village buried in the bush when I had walked a mile or two—a charming place it was, clean and pleasant, and sweet with flowers. The Samoan houses are different from the Tongan ones in some respects, being much more open, as it is far hotter here than in Tonga, and they always have a sort of floor of loose pebbles, which extends beyond the house all round it for some way, where it is edged with larger stones. These houses are clean and pretty, and generally cool, as plenty of air can come in, but no sun, as the roof comes down within three and a half feet of the ground at the eaves. There are always mats upon the floor, and a fresh one is pulled down from the rafters, which are used as a sort of store-place, when a visitor comes in. Curtains of *tappa* are generally hanging up in these houses, giving a very

furnished and comfortable appearance to them, and screens can be placed at night-time between the short posts that support the roof, to keep out wind and insects. A few wooden pillows and a chest complete the ordinary furniture of a Samoan house. Their cooking is always done out of doors, a fire inside would be such a discomfort. As I walked through this village I received many invitations to go into the different houses, and one I accepted. I found the people very pleasant and hospitable, like the Tongans; they instantly produce refreshments, such as they have, cold cooked green bananas, *dalo*, or coco-nuts. The master of the house, or the one I took to be such, for there were several full-grown tattoed men in it, asked me my name, and told me his and his friends', and also asked me to come to his *fale* again on my way back from Faleula, the fort, which I promised to do; but when, in the late afternoon, I was there again, the houses being so exactly similar, I could not tell which was the one of my friend of the morning.

It must not be imagined from the above sentence that they speak English, or I Samoan. I know little of their tongue and they know none of mine, but pantomime steps in, and I find that if I try to make myself as much like them in thought as possible, I quickly understand a great deal. When my name is asked I always give it as "Alfledi," as they cannot pronounce the letter r, and all their words must end with a vowel. The little children are very quaint and pretty, quite naked, and with their heads shaved close, with the exception of one long lock or tuft, like the Tongans. The mothers are the barbers, and it is astonishing how clean they can manage to shave with perhaps only a shark's tooth set in a stick. In these islands,

where steel is still a rarity, the men are shaved by means of two shells, one pressed against the bristles and the edge of the other rubbed against it. This shaves admirably, although one would hardly think it. I do not know whether I have mentioned this before; it must be remembered how tired I am every night when I write this, and excuse made if I have. Just as in Tonga, the children here have enormous stomachs, —I suppose from eating so much farinaceous food,— but they become proportionate again when about five years old. One never sees babies here swathed up in bandages as they are at home, and this, perhaps, is one reason why their stomachs are so large when little, and perhaps why they are so shapely when they are grown up.

I enquired my way to Faleula here, and one of the young men put me on the right path, which lies through very dense and shady bush. The trees are grand in the extreme, and I found many beautiful ferns, and upon the branches of old trees and in the forks of the trunks there were many very large specimens of the bird's-nest fern, *Asplenium nidus*, the largest I ever saw, as the shining fronds of some of these great cup-shaped plants were seven feet long. It is a very glorious object. In some places were large orange trees all covered with fruit, and there I sat myself down, and consumed at my leisure as much of the fruit as I wanted, which, as the day was intensely hot, was no small quantity. Living here is like being in a constant vapour bath; I never felt anything like it, and I think it is not to be much wondered at that the white population is sensual, idle, and luxurious; it would be hard to be otherwise in a climate like this. Many men succumb to what is called "mat

fever,"—that is to say, they are afflicted with such idleness that they cannot be induced to leave their mats, or do anything.

I had walked for a long time,—the distance I put down as six miles, but perhaps it was not quite that far, as distances always seem so much greater than they really are when the place is new and most things about are novel,—when I came upon a large plantation of coco-palms, thousands of which grow together in this place, and through their crowded stems I saw the fort of Faleula for which I had been searching. It stands on a well-wooded point of land running out to sea, and in amongst the trees are the many brown buildings of the place. From where I stood the view was a very charming one, as, although I was in deep shadow, all the fort was bathed in sunshine, and between me and it a bay of bright blue water lay, on which floated the huge double-prowed canoes of the warriors. The shore is very rocky, with great boulders scattered on it, and is fringed with a line of palms. The town of Faleula, which means, I believe, Red House, is surrounded by a great stone wall, on which again are piled dead trees, to act as a fortification; at different places along this wall little protected platforms are built, where ten or twelve men can stand to fire upon an enemy. This has a very savage appearance; but what gives the greatest wildness and character to the place are the five little detached fortresses that lie between the shore and the reef, to protect the face of the place from attacks made upon it by the canoes of the Old Party, whose chief territory, the Aana district, lies farther up the coast. These five little houses are built upon piles driven into the sea bottom, and are raised in this way a good deal above the highest

tide; they are built of heavy timbers, and are roofed with the usual thick thatch. Poles and posts are driven into the water about them for canoes to be lashed to, and for other purposes; and from projecting bamboos on the roof fluttered little pennons of *tappa*, white in the sunshine.

The Old Party cannot very well bring their great canoes down outside the reef, or perhaps there is no entrance just there, and they used always to come down on the smooth water inside until their enemies built out these little forts, which must stretch out nearly half a mile from shore, and so put a stop to it.

I entered the fortification without any difficulty, only seeing one man at the opening in the wall of loose heavy stones, and he ran off when I approached, perhaps to give information of my arrival. I walked along a well trodden path until I came to the houses. The place is about two miles round, roughly speaking, and it is all wild bush, just as outside, except at the point of land that runs out to sea, where many buildings are collected, and also at occasional places round the walls, where are other houses near the platforms I spoke of, upon which the besieged can stand and fire upon the besiegers. I caused much astonishment by marching through the place until I arrived at the largest house, which happened to be the chief's, where I entered. Here I found two charming old men, both of whom spoke English, one of them quite intelligibly. They at once asked me to sit down with them, which I as quickly did, and seeing that I was hot, for by this time my light drapery clung about me in the most approved Greek style, they gave me a coco-nut to drink, and then, from the oven in the ground, which they opened, they produced fish and

roast bananas, and a delicious dish of native invention, named *faa-usi*, which is a sort of little brown pudding, made of arrowroot, coco-nuts, and sugar-cane juice mixed together, wrapped in a leaf, and baked brown in the hot ashes. It was excellent.

I sat there for about an hour resting myself in the shady house, talking to these old men, as I could do very well, and looking at all the treasures the place contained. They have racks of splendid firearms, and one or two superb rifles of very recent invention, for which they must have paid prodigious prices; then there were rows of canoe paddles, woven fans, fly-whisks, bales of *tappa*, and rolled up were many very fine mats. These mats are their chiefest treasure, some of which they consider beyond all price. When a tribe goes to war the first thing to be done is to place the mats in safety, and, if it is beaten, mats are the first thing to be taken by the conquerors. Some of these *togas* are very old and dirty; age but enhances their value; some still extant are said to date from 200 years ago. Mats form a principal portion of the property that is given with every bride, and the bridal mats of some of the old families are of inestimable value.

In this house all sorts of things were being done, such as plating sinnet from the coco-fibre, and making thick ropes from this sinnet. The gray-moustached warrior that talks English looks for all the world like a retired cavalry officer, but for the fact that he wears nothing but a very little blue *lava-lava*, and a great deal of very beautiful tattoo. He entertained me with an account of the war, somewhat compressed, to be sure, as it has been continuing for more than forty years, and tried vainly to make me understand the

exact differences between the two parties. He tells me that they are daily expecting an attack from the Old Party, who have an equally large fort about twelve miles away. This information was gained from some women who have recently came in from the Old Party's camp, and who, of course, immediately gave all the news they had picked up there.

The courteous old chief much regretted that all the canoes were away from Faleula, except the great war-canoes, of which there were a good many on the beach, for he would not be able to send me across to see the little forts between the land and the reef. The war-canoes vary in size, but will hold from fifty to a hundred men, and are most skilfully constructed, all the parts being tied together with ropes on the inside, and fitted with such exquisite nicety that it is difficult to tell where the planks are joined. The tall prows are decorated with peculiar polished white cowrie shells, which are stuck all over them, and look like glistening china. This, the King Party, has also bought a small rakish-looking schooner, which lies just off Faleula, and of this they are immoderately proud. My friend talked of it as "the Samoan war schooner" with as much unction as he would have spoken of a fleet of ironclads.

When I was quite rested I had a young man told off to me to act as guide through the fort, through the whole of which I was led, to my intense interest. It appears that 3000 men can be housed here well, not to mention the women and children, who are nearly always with them; so the place is large. It did not seem to be provisioned for any siege, but I hardly think that a long beleaguerment is their tactics; everything seems done by surprises and sudden assaults. On the

outskirts of the place they have built wooden towers, facing seawards, where many men can be safely placed, protected from the fire from the canoes, which are fully exposed to them. One of these that was being finished I mounted with some little difficulty, as it is not at all an easy thing to do with one's boots on. This visit was quite a novelty to the builders, as they very rarely see a white man amongst them; for, although the distance from Apia is not great, the Europeans will not exert themselves to go so far for so little purpose. Most of these builders wore only *lava-lavas* of a kind of leafy grass, and I think that both men and women look their best when dressed in this way, with flowers in their well-kept hair. These wooden towers must give the Faleula people a great advantage over their enemies, as they can fire straight on to any canoe that could manage to get near the place, with only a very small chance of being hit in return, as there are only a few chinks in the stout timbers on each side. I stayed up that airy perch some little time, and made myself agreeable with plugs of *Papalagi* tobacco, which they much appreciate, and of which I always carry a stock in long hard-pressed sticks.

It took me a long time to make a complete examination of the place, which may be considered strong against the attack of savages who do not care to risk too rashly their lives, but it would not stand five minutes against a determined rush. I was very charmed with the sharpshooters' little boxes, which they build right up amongst the branches of the great trees, and I scrambled up to one by means of a sort of ladder, and was nearly frightened out of my wits by one of the bamboo supports breaking when I was

close to the top, which little accident caused infinite amusement to a small crowd of young men at the bottom. When I had visited this queer little defence I descended to *terra firma* again, and made an attempt to sketch it, which created no small amount of wonder amongst them,—an effect that I much expect the drawing would have upon most people, though from a different reason. When I had been all round the place, which strikes me as being much too large for its purpose, I returned to the chief's house, where I sat a short time before I started home. One of these men gave me a very beautiful bit of Samoan work before I left, and they asked me to visit them again. I told them where I was to be found in Apia, and said that if they were going there they must come to see me, which they promised they would do.

The walk home was very much longer than the one out; as I found, when I came to the mud flats I crossed in the morning, that the tide was in, and the swamp absolutely impassable, so I had to find my road home by land—a very long way, but I was more than repaid for my trouble by the interest of the walk. I passed through several villages, in one of which I rested, as I felt rather tired, and as I saw a house, with four or five pretty girls in it, who I thought would receive me well. They were weaving wreaths of the flowers which lay in scattered heaps upon the floor, and making strings of newly-opened buds and scented seeds and berries, selecting some of which they decorated my hat with crimson hybiscus, and a sort of fringe of leaves of palest green. They most certainly have an eye for colour. All the time I sat with them, trying to talk, an elderly lady, who was present, made remarks about me which were received

with peals of laughter. I did not mind, since it made them show their pretty dimples; and, besides, I retaliated by talking aloud about them in English, which none of them understood, so I had the best of it I consider, as they would doubtless be burning with curiosity to know what I was saying. The Samoans used to believe in an island, supposed to be somewhere north of Fiji, that was inhabited solely by immortal women. Their occupations were held to be much the same as those of the Samoan mortal women of nowadays,—*tappa* making, basket weaving, and wreath twisting. If a canoe of men was wrecked upon this island they were received with the utmost kindness,—indeed, they were only too kind. One Fijian canoe was believed to have been there, and returned with full particulars.

I had to cross many little rivers which came tearing down seawards from the hills, and one I found that rushed out of the ground, before my eyes, a full-grown stream. I am told that a good many of the Samoan rivers are subterranean for part of their course. At one stream I found some women bathing, and at the next a string of girls who had come to fill the large coco-nut shells, which are much used for carrying water; and I met two little lads who gave me some queer fruit to eat that I did not like at all, and whose names I do not know; so that I did not have at all a dull or lonely walk. I also had the pleasure of meeting a Samoan and his wife as I was strolling along, beginning to feel very tired, who commenced a sort of barter with me, which I thought so funny that I let him have his own way, although I had to wipe my face on my shirt sleeve the rest of the way home in consequence. He had a fly-whisk in his hand,

which he offered to me, at the same time taking hold of my white pocket-handkerchief, which was in my hand for the purpose of occasionally wiping my face. By signs and nods and pointings, he made me understand that he meant a "swap," which I at once agreed to; so we parted mutually content, I walking off with the whisk, and he handing the handkerchief to his wife. They are very much attached to a white handkerchief, which, I suppose, they cut up into Sunday gowns.

When I had walked till I was quite tired, and it was almost sunset, I found myself in a village, on the edge of what I thought was a large river which barred my farther progress; but here again I was lucky, for I discovered an old lady who, for the sum of sixpence—a small fortune—received me into her *frêle esquif* and paddled me off. I was much astonished, for instead of landing me amongst the trees on the other side, as I expected to be, the old woman paddled straight in amongst them, and I found it was part of the great swamp that I had crossed in the morning. The trees were quite a good size, with strangely convoluted boughs, and very odd and beautiful they looked, rising out of quite deep water which stretched on all sides as far as I could see between the trunks. The natives had evidently formed a sort of passage amongst these thick trees to allow the canoes to pass. On the trunks well up above the water, I saw strange orchid-looking growths. After travelling thus up these watery avenues for a long way, I was landed on *terra firma* (rather *infirma*, by-the-by), about half a mile from Apia, and here I bade farewell to my conductress, who paddled off home again as I turned to walk to the town

I found an invitation waiting me to dine with the consul, so after a bath, very necessary after the heat and dirt of the mangrove swamp, I went there and have passed a very pleasant evening. He has told me many things of the place and of its customs,—amongst others, that there are three different languages spoken by every one in Samoa; the first a strictly court language spoken by the king and the highest chiefs, the second by the lesser nobles and warriors, and the third by the common people.

CHAPTER VII.

SAMOA—(*continued*).

NEXT day I felt a little stiff after my long walk to Faleula, so I determined to stay about Apia and see something of the natives. Just before I started out I received a visit from one of the old chiefs I had seen at the fort; he had paddled over in a canoe, and came to show me whereabouts in Apia his home was. It was a capital house a long way up the beach, and there I found his wife and other women, his son and his grandchildren, all within for the heat of the day. Some of the women of the house were plaiting the lovely flexible fans that they make here—heart-shaped mostly, but all very beautiful; some of them are all open work, the meaning of which I could not at first see, as they were not nearly so good for fanning as those completely filled up, but Péa told me that the open ones were for killing the mosquitoes; the current of air made by the ordinary fan drives the insect away and he escapes, but the open ones let the air through, and the ribs generally catch and kill the fly. They make very quaint and charming baskets here too, which they use for many purposes.

Péa's son and some of the elder grandchildren were occupied in feeding two beautiful tame pigeons that they had hanging in wicker cages in the house; these birds are very bright with purple and green and crimson,

and the neck glows with iridescent colours. They are used in the great Samoan sport of pigeon-catching, a very different performance, I am glad to say, for the credit of the savage, from our so-called sport of pigeon-shooting at home. This used to be the great amusement of Samoans at certain seasons, the young men and maidens going off to the bush for days on these occasions, making a delightful picnic, and everybody having a glorious time of it; but it was considered immoral, like everything else pleasant, and it was put down in its old form, and though it still exists, it is not half such a happy Arcadian thing as it used to be. The men build themselves houses of green branches, outside which they fasten these beautiful decoy pigeons, which soon entice others to alight on the self-same bough, when the unwary ones are speedily knocked over.

I very much enjoyed my visit to this old man's house, as he told me many things that I wanted to know. It appears that infanticide was never practised even to the same small extent as in Tonga, but that the destroying of children before birth, to a very great extent was and still is very common. I learned too that marriages never take place between near relatives, as obtains in many places; and that so strong a feeling of propriety exists amongst them, that if a man's sister should happen to be present he abstains from saying a word that might in any way suggest the least indelicacy, although he would not have had the least hesitation in speaking most lewdly before any other women, and although his sister herself may be exceedingly libertine.

As I was passing through the village I stopped and entered the house of one of the native missionaries, meaning to have a little transaction with the

daughter of the house for some fans. Whilst I was there she and a very ugly older woman went through the most extraordinary performance, pantomimic and gesticulatory, for my amusement, and which involved the most astonishing contortions of the face that I ever saw. I roared with laughter, it was so really funny, and this set both the women off, and we were quite a merry little party. I must add that although the young lady's father was a man of good repute for piety and propriety of behaviour, I cannot say much for the way he had brought up his daughter. But she is a very pretty girl, and that may have something to do with the levity of her manners. The reverend gentleman being away we made merry in his absence, and had a little feast made up amongst us, and enjoyed ourselves mightily.

When I returned to the town I found that a quarrel had occurred between the German consul and the captain of H.G.M. gunboat in the harbour. It seems that somebody or other had caused to be locked up a party of dancing girls that some of the German sailors were attached to, and who forthwith burst open the doors of the prison and set the fair ones free. Somebody interfered with them, and somebody else's jaw was broken, and all the town is in a great state of uproar about it. I heard the whole affair going on last night, but as Apia is such an infernal place, I regret to say I took no notice of it, so I was not in the riot. However, there has been a great fuss about it, and off goes H.G.M. gunboat in high dudgeon. I managed to send a few hasty lines to New Zealand and England,—when they will arrive is another matter.

I am not at all a scientific naturalist, but all the same I must tell of a very curious occurrence that

takes place here every year, and only once for a period of two days. About the end of October a dense mass of sea-worms rises from the bottom to the surface of the water, inside the reef. They are of all lengths up to three feet, and are dark-coloured and soft; these wriggling beasts are considered by the Samoans as the very greatest possible delicacy; and when the season for the rising of the *Palolo*, as they are called, arrives, every native man, woman, and child turns out for the fishing, scooping the slimy treasure up in every conceivable manner. The *Palolo* time their appearance so accurately that they are always expected, and as they stay on the surface for only a very few hours, from about 4 A.M. till the sun is up, the fishers have to make the most of their opportunity, and the fun that goes on then, and the general state of excitement amongst the population, are something prodigious. They are a strictly local annelid, only appearing in certain favoured spots in Samoa, and I believe also in Tonga at somewhere about the same time. I did not see nor taste any of this dish, and should think from all accounts that it is likely to remain *caviare* to the general public.

I do not know whether the *Palolo* has anything to do with the following legend, which altogether forestalls Dr. Darwin's claim to having originated the theory which bears his name. The Samoans say that man was created thus:—Tangaloa, the chief god of the Samoans, sent his daughter Turi down to the earth to look for a home; she could only find bare rock in all the waste of water, and returned and told Tangaloa this. He thereupon gave her a wild vine to plant on the rock, which for a certain time flourished and then died away. Turi was annoyed at this, but her father

told her to dig it up, which she did, and found that all the withered leaves had turned to worms, and these worms afterwards, in some inscrutable and unexplained manner, became men and women. From this rock, where first men were created, the Samoans believe they came. It almost seems that they preserve in this legend of a migration evidence of an early real voyage. But I cannot enter into that subject, for it is so late that even Apia has all gone to sleep.

I have passed, I consider, a very pleasant time to-day, and have learned a good deal about the natives from themselves, and of their manners and customs, though all that I have heard I fear I cannot write down. I suppose some of the customs of which I have been told are now antiquated and out of date just about here; for instance, such as this one:—If two Samoans of the same family died of the same disease, the survivors—thinking, I suppose, that they all might be carried off—used to open the body of the latest dead, and if they found any parts of it inflamed or congested they were taken out and burnt, so as to destroy the disease. The bodies of their dead were always buried with the head to the rising sun and the feet to the west; but the great ceremonies attending a funeral are obsolete now in most parts of Christianised Upolu, though in wilder Savaii they are still, I believe, extant.

I have just come in from the consulate, where I have been passing the evening; with the consul I went out to see the king, whose dwelling is some little way out of Apia. This is the monarch that the foreign powers recognise as chief. It was rather late when we arrived at this place, which is a congregation of native houses, with a larger one for the king, and to

my great regret his Majesty had retired to his mat. [I am the more sorry for this, as after my return to New Zealand I was offered a post by Sir Arthur Gordon, the High Commissioner of the South Pacific, which would have necessitated my residence in Samoa, and which would have brought me into intimate relations with the king. Feeling deeply the compliment paid me by his Excellency, I had, for family reasons, to decline this appointment, which had many attractions for me. I regret not having seen the king, whose adviser, and friend I hope, I should have been. I was of course quite ignorant of all this at the time.]

The scene as the consul and I returned to Apia was a very beautiful and strange one, for the night is very dark, and the whole sea inside the reef is alight with the torches used by the natives for their fishing. They go out after dark to spear fish, and each canoe has a huge flaming torch in the prow that blazes so royally that you see in its ruddy glare the dusky figures of those that are nearest the shore moving about in the canoes and darting their long three-pronged spears at the fish. As I look out now across the verandah the whole sea before me is bright with torches: it almost seems as though another town were over yonder, lighted for some festival.

One day, after I had been some time in Apia, I thought I would devote to walking to some of the plantations, where I hoped to be able to find some specimens of old stone axes and adzes; so out I started early in the morning for the expedition. My road at first lay along the beach, which is dark-coloured, almost black in fact, and very different from the yellow light sandy shores of the purely coral islands. There are a good many little rivers that I had to cross,

and each time I did so I cursed in my heart my foolish clothing, for at every stream I had, at any rate, to partly undress, whereas a Samoan would simply have lifted up his *lava-lava* and walked through. In a shower of rain too they take no hurt, as their oiled skins fend off the wet, and in a few minutes they are as dry again as possible; this last advantage struck me forcibly, as it came on to rain rather heavily and I had to shelter in a native house. Continuing my walk for some miles along the beach, I came to a lovely little bay, where I turned inland, after passing a crowd of natives carrying the roof of a house to some new site; these fine roofs are always made movable at will, that they may not be lost if a man wishes to leave his house.

The scenery of that part of the island is very beautiful, wilder and more tropical than almost any other I have seen. The shore, to begin with the foreground, is of sand, all shaded with coco-palms, that bend and curve in every direction; and between them the hybiscus, with its mass of primrose blossom, grows to a largish tree. Many other flowering shrubs thrive close to the sand, and over all the *ipomea* trails its graceful wreaths. Then comes a stretch of calm still sea, blue as turquoise, through which the coral rocks show, for it is now low tide; at the edge of this a line or two of breakers, in some places rising to a great height in sheets of white spray, where they dash themselves on the wall of the outside reef. All the darker water of the open bay is ruffled with waves, and across there, the opposite shore—in some places dim with mist, and fringed, as is this, with its line of palms—rises gradually from low hills, fold upon fold, to grand beautiful mountains, luxuriantly green and tree-covered to their

very summits. Down their sides float light clouds, for the day has been wet, which are rapidly melting away in the fierce glare of the now unclouded sun, which shines down on everything with a heat and brilliancy of light I cannot describe. The whole bush is steaming when I leave the shore, and there comes no breath of air; heavy perfumes greet me as I pass some trees, mostly with inconspicuous pale flowers, and all life but insect life is still. Here and there in the rich undergrowth are clumps of pine-apple, which just now are flowering, and the rich shaded crimson of the blossom, with its tuft of pale bluish-green, makes a beautiful contrast with the dark green about it. Every now and then the narrow path I follow is dotted with golden limes or oranges, and looking up I see the glossy-leafed tree with its load of fruit above me.

After following this path for some way I came into land a little cultivated,—that is to say, the bush has been cleared, and the cotton bushes and coco-palms planted there are struggling for existence with the vigorous second growth. The path, which now became wider, was lined with bananas and plantains, and here and there a handsome bread-fruit, all the way to the manager's house, which was cool and shady and grateful after the blaze and glare of the outside light and heat. I was very kindly received by the manager, who much regretted that no stone implements had ever been found on his domain; he told me that I should probably obtain some from the next copra plantation, if I would walk to it. After a little rest I marched off through the cotton bushes, which are always planted with cocos, so that by the time the former is worn out and useless the palm will be in full bearing. I enjoyed the walk, although it was so hot a one, for the forest about me

was more lovely than any I have ever seen before; and ferns or flowers, or bright and gorgeous insects, beguiled every step of the way. It is strange in this intensely hot weather to feel the icy coldness of your throat if you lift your hand to it. I suppose it is caused by the very quick evaporation that is taking place there. Descending one steep hill I came upon a clear and swift river, all overarched and shaded with grand trees, through which the sunlight fell here and there, flecking the ripples into brightness,—a perfect tropic stream, into which the rich creepers from the overhanging boughs trailed their long wreaths, and over which the crimson-breasted *tolai* flashed like a spark of living fire in the dim half light of the shadows. Some women fording it had found it as winning as I did, for there, under one of the banks, they were laughing and splashing in the water like so many dusky naiads, and fled hastily when they saw me descending.

The manager of the second plantation received me gladly, and would have feasted me royally had I allowed him to do so; he most unfortunately had lately given away the last axe that he had, and it was not likely that his "labour" would find any more during my stay in Apia, as they were not then working at the place where they generally found them, which was the site of an ancient town. I am sorry, as I have been able to obtain so few in Samoa itself.

The rest of the day I passed in and about Apia visiting some of my native friends, and also taking an evening swim in the river after the heat of the day, as seems to be the correct thing in these parts. After nightfall I went to see Leapai, one of the very finest and best natives I ever met. I had some little difficulty in finding his house, as after dark it is no easy thing

for the uninitiated to find their way through a Samoan town; however, after an inquiry or two, I found my man. He has a charming wife, Papé by name, who was every bit as hospitable and pleasant as her husband, which is saying a great deal. We spent a most delightful evening, and I learned many things, as not only is Leapai an intellectual and clever man, but he speaks English well. We smoked many native cigarettes together, and had much *kava*, prepared *faka Samoa*—Samoan fashion—which is different from the Tongan method, and the drink is really much better. I have already become very fond of it. From the mere description, one might think the manner of preparing the root somewhat disgusting, but it is far from that; the delicacy with which it is done and the cleanliness of the operation takes away any such feeling.

Leapai sent out for a young and pretty girl to come to the house to get the drink ready, which she thus did:—First she cleans her mouth and teeth with fresh water, brought to her for the purpose, and then taking the *kava* root she cuts it into small pieces, and proceeds to chew it to a paste with the greatest solemnity and decorum, defeating all my efforts to make her smile. It is a business of some time, as each dry piece of root has to be thoroughly masticated before it can be mixed with the water. The *kava* is kept wonderfully dry in the process of mastication, and is put from the mouth straight to the bowl; when enough is thus chewed cold water is added, and the process then is the same as that I described in Tonga, with the difference that a girl is always here the drink-maker throughout, instead of a man as in Nukualofa and Vavau.

Leapai is magnificently tattooed, and his dress being almost nothing showed both the man and his decora-

tion to great perfection; he was pleased with my admiration, and let me examine the tattoo, and told me the whole process, which must be a very awful one to undergo. The tattooed parts are rather thicker than the rest of their soft and satiny skin, and are of a deep indigo blue, almost black. The decoration begins below the knee, and completely covers the thighs, back and front, and reaches as high as the navel. All the designs have the same character, though they vary somewhat in detail. The back is, I consider, the most beautiful part; narrow stripes are tattooed from the spine round the sides, but all parts are connected together; none are detached, as I discovered by rolling Leapai over on to his chest this evening when I was learning all about it. He wants to take me to have a little done, which he said would look beautiful on my white skin; but I tell him it would be no good, for no one would see it in my degenerate country, where *lava-lavas* are not the mode.

The young men are tattooed at about the age of seventeen, when already they are fully grown, and several of them generally go together to the tattooer, who makes a very good living out of it. The artist or operator lives by his profession, and does nothing else; and a skilled worker receives very handsome payment. The whole operation occupies several months, as only a small portion can be tattooed in one day; the process is exquisitely painful, as may be imagined when one hears how it is done. The design, which is traced upon the skin of the young man, is all closely punctured with a bone instrument with many fine sharp teeth, almost like a comb. There are several sizes for the different parts of the pattern. The instrument is held close to the body and receives little taps from a

mallet, which drives the teeth through the skin, and leaves behind the colouring matter with which the comb is charged, and which is made, I believe, of the soot of the candle-nut and water. The regularity of the design is marvellous, and the precision of the blows must be perfect, as the two halves of a design are always exactly similar.

In the course of the evening I asked Leapai whether there were any stone buildings in the island, like those that occur in Tongatabu, and to my surprise and delight he said that there were, and gave me an account of the place, sometimes turning to a friend of his who had come in during the *kava* preparation, asking him for descriptions or corroboration. The place is called *Fale-po-maa, i.e.* "house with the stone posts," and they tell me that the building is of the greatest antiquity, so old indeed that its origin is lost in the mist of ages. Leapai said that the Samoans nowadays could not think how "the people of old time" worked the stones. He gave me another name for the building, which I am sorry I forget, but he said it meant "house of the cuttlefish." He tells me that this building lies a long way from here inland, right through the bush, that there is no town near it, and that no one lives there, nor ever has done so. The shape of the house is like the ordinary oval Samoan ones, but at *Fale-po-maa* the posts are all of stone; the side posts for the roof to rest on, and the two great ones in the middle that supported the roof ridge, are all of thick and solid stone; and there are other huge stones about, of the uses of which Leapai, being nothing of an archæologist, was ignorant. There is now no roof of course, for that would have been of thatch, and has rotted ages since, The building stands not very far from the same river

which flows into the sea just here; I wish it could tell me the mystery of the building whose foundation and ruin alike it has flowed by unheeding. Do not these silent ruins always seem to fill one with a sense of our smallness? Doubtless the builder of *Fale-po-maa* thought he was handing his name down to all time, and yet he is completely forgotten, and the very purpose of his stone house unknown or wrapped in a maze of superstitious legends. He must have been a powerful chief to have done a work of such magnitude with the miserable tools they possessed, and of an original mind too, to have left wood and taken to a fresh and more difficult material. It is curious that he seems to have had no idea of true building, for Leapai says the posts are all in one piece; he took the stone and set to work upon it simply as though it were a species of harder wood. As far as I can learn from Leapai and his friend, this is the only stone building in Samoa, at least in Upolu; if there were others they would know of them probably, for all these places have legends attached to them that they are sure to have heard at some time or other.

I have arranged to visit *Fale-po-maa* with Leapai to-morrow. I cannot tell whether this place had any connection with their religion, but judging from analogy I should say that it had, for the great monuments of every country have been erected for sacred purposes.

I cannot quite understand what the old Samoan religion was,—perhaps my informant himself is a little confused about it, for he has always nominally been a Christian; and practically too, if generosity, hospitality, and courtesy count as Christian virtues. As far as I can make out, besides the general religion of the whole people, each person had a sort of private god separate

for himself, which he worshipped under the form of some particular bird or animal. How this god was selected I know not, but suppose it was according to some occurrence at or near the birth of the child. So interested was I in all the things I learned from my friend, for I have seen much of him and can really call him one, that it was late before I left his house, and it being quite dark when I at last rose to go, he had to lead me to the beach, where of course I knew my road. I was not committing a rudeness or doing an unusual thing by staying so late, for these Polynesians will often sit up all night long, talking and smoking, and Leapai enjoyed it as thoroughly as I, for I told him all that he wanted to know about England. I fear he must think me a terrible liar, some of the things I told him of must be so entirely beyond his imagination.

I started moderately early next day for *Fale-po-maa*, going to Leapai's house, for he was to act as guide, it being a place very difficult to find; as it was late in the morning he had gone out, thinking I was not coming. However, Papé, his wife, put me in the hands of a charming little boy, Tsofá by name, who undertook to find him for me, so off I and the child walked into the bush. At first the little lad was rather alarmed at his big *Papalagi* companion, but we very soon became better acquainted, and he was as jolly and lively as possible, pointing out to me all sorts of birds and telling me their names, which I forgot as soon as heard. At last we found Leapai working in his *taro* plantation, which is a patch of cultivated ground right away in the depth of the bush. I think I have written before of the *taro* cultivation; the natives select a damp and low spot, and, clearing

it, turn a little stream onto it through an artfully constructed series of little terraces and canals, and so manage to keep the whole of it under water. It is thus that the *taro* grows best, and the great glossy arum leaves of the plant make a handsome show.

Leapai was very unhappy at being out when I went to see him, but he thought I had understood, which I had not, that I must join him quite early in the morning, for the journey takes so long that it would otherwise have been useless for me to have attempted it, as I should without fail have been benighted in the bush. He took me to a native town to see what his friends said about it there, and they quite agreed that I could only do it by starting at sunrise, when I might hope to be back by sundown.

I am bitterly disappointed, but have nevertheless enjoyed my day very much with Leapai. The native town he took me to lay a long way back from his plantation, on the way to the mountains, and is built on the top of a hill, in what would be, as Leapai pointed out, almost an impregnable position. These Samoans are always thinking of fighting, and my companion was saying what he should do, and what he should wish, if only the Old Party effected an incursion into this part of the country. Leapai is a petty chief, and as such spends a great deal of his time at Faleula, where he is attended by a retinue of four or five brothers and cousins, who, in a feudal sort of manner, follow the head of the family. It is the one great grief of his life that he failed to gain "a head" during one of the attacks upon the Old Party in which he was engaged. He was just upon the point of thus achieving fame and renown, having his enemy singled out and covered, when a shot came and shivered the

lock of his gun in his hands, the pieces cutting him rather badly. He laments much the gun, but still more so the "head."

After resting and cooling for some time in the native town, which at this time of the day was almost deserted, we returned towards Apia by another and more beautiful bush track, by the side of the clear river, the Sigasiga, which is broken every now and then by little waterfalls and rapids, which gurgle and dash themselves over the rocks in the most distractingly cool manner. Ferns and glorious greenery of all sorts grow thick by the sides of the path, and here and there a fleck of bright colour is given by the wild scarlet ginger flowers. We visited another of Leapai's plantations—he is a man of some property—and there again we rested at the house of a friend of his, where I caused so much astonishment by appearing with Leapai that a woman sitting there nearly choked to death the child she was nursing, by cramming a much too large lump of *taro* into its mouth without looking at it. Leapai had to give an account of me and say what I had come for, and so on; and much I should have liked to know what he did say, for I expect it was a queer sort of statement, to judge from the astonished looks of his auditors. He has great enjoyment, I think, in acting as showman—a sort of Barnum-like pleasure in "trotting me out." We had refreshments here in the shape of coco-nuts and *masi;* the nuts are the largest I have seen, and must have held quite a quart of delicious liquid; how they did come crashing down from the palm when the elder brother of the gasping baby, who climbed it, bowled them over! *Masi* is what most people would consider a very disagreeable food, the smell of it is so bad—

so very bad. In times of plenty a great number of bread-fruits are collected, which are cut in slices and buried in the ground in pits properly prepared and lined with mats or branches; there the fruit ferments and is left for many months before it is fit to eat. If kept dry it can be preserved for a long period, and in times of famine it is often upon this food that the Samoans rely. The taste of it is not at all bad; if only you avoid smelling it whilst eating it is rather pleasant.

Refreshments being over, and our *faă fetai* said, on we went again; not, however, very far, as we found a delightful place for a swim in the river, which was too charming for us idle Samoans to resist. How I envied Leapai, who had only to slip off his *lava-lava* and jump into the water, whilst I was still tugging at my shoe strings. What a glorious bathe we had, and how splendidly this fellow could swim; water seems almost as much his natural element as earth. The distances he could swim under water were astonishing, as were many of his feats; he showed me many tricks, which I attempted with much floundering and splashing, and failed to do. My swimming powers certainly looked very small by the side of his. One thing that he did, that I could not quite accomplish, was to strike the water with hollowed hands, crossing them at the wrists just as they touched the surface, which made the water sound sonorously, almost as though a bell were struck.

A bowl of *kava* was very grateful when we at length reached Leapai's house again; it is more cooling than any drink I know, and less of it quenches the thirst than of any other liquid. After its consumption Leapai and Papé presented me with some very beauti-

ful gifts; large pieces of *siapo*, as *tappa* is called here, charmingly decorated; fine fans, fishing lines, and I know not what else of delightful things; indeed, they offered me almost everything in the house. When I was there again at night-time, after resting during the heat of the day, and made a small return presentation, I found that all the most unlikely and apparently useless things were most appreciated, such, for instance, as the knife with button-hook, corkscrew, and stone extractor, for none of which he could have any use, and a little gold toothpick, for which most certainly he had not the slightest necessity.

CHAPTER VIII.

SAMOA—(*continued*).

ONE day after I had been in Samoa some time, I arranged with a young Englishman here, named Hay, and the lad who had come up with us from Tonga, to take a boat and go for a day or two to the Old Party's camp in the Aana district. We had to take two Samoan women with us to act as interpreters and introducers, as all the men about Apia belong to the opposite faction, the King Party, and therefore dare not accompany us; but the women, as I said before, can pass from one camp to the other without hindrance; in fact, Pua-elo, one of the two that accompanies us, comes from the very place we were going to, and is a person of no small importance here.

I am very unwell, being threatened with dysentery, and ought not to have started, but having arranged everything I could not give up the expedition. We took some few necessaries with us, amongst which was a Union Jack, to show our nationality, that the forts might not fire upon us as we passed, as otherwise they would have done. We left early this morning and had a fair breeze, so that we bowled merrily along, and being outside the reef all the way we had it quite smooth, although the surf was breaking heavily, at times, not a hundred yards away. Lying bare upon the reef are the remains of several large wrecks that

have taken place here, one quite recently, and very melancholy and grim they look, standing high upon the coral.

When we arrived opposite the fort at Faleula we had to unfurl our banner, which I waved in an idiotic manner, feeling uncommonly like *The Young Pirate*, *The Boy Bandit*, or one of the youthful heroes in the penny *British Schoolboy*. They say that this proceeding is very necessary, as the warriors have several times fired from the fort at European boats, mistaking them for Samoan. We sailed between the little forts I spoke of before, that are built out seawards on piles over the water, but we went by too quickly to see very much of them; they seem to be strongly built of heavy timbers, as though they were meant to resist any attack that might be made upon them. The long poles projecting from the roof with tiny flags of *tappa* on them, and the posts driven into the sea-bottom, to which are attached several long slim canoes, give the place a very savage appearance. The fort of Faleula itself seemed very lively; just after we had passed they were firing on an Old Party canoe that had ventured too near. No one was hurt—we saw them paddle off. The Samoans get so excited that they generally fire before what they aim at gets well into range.

About six miles out of Apia we called at Malua, where there is one of the oldest established missionary stations in the group. We found Dr. Turner there, the much-loved and respected man who for forty years has devoted himself to missionary labours; he is a very agreeable and clever man, and, as may be thought, most interesting to talk to. He and his bright wife seem thoroughly happy in their work. The doctor, hearing I was ill, gave me medicine, and good advice

as to what I might eat and from what I should abstain, for the missionary is often general-utility man, and gives advice and consolation, medical as well as theological. There is established at Malua, under Dr. Turner's direction, a college for Samoans, where they are taught some useful knowledge, and a great deal that I should think is very useless. We left after a brief visit, and then turned our back upon all civilisation, and left everything that was not savage behind us. The women are good pilots and showed us just where to steer, for in many places there are only very narrow passages for the boat between the shoals of coral rock.

We arrived at Fasitoöuta, our destination, at about mid-day, and were received by a whole crowd of natives on the beach in their usual hospitable manner, rushing into the water to help us to haul our boat high and dry ashore. It was to Pua-elo's house that we went when we had emptied the boat of all our belongings and many willing hands had aided us in carrying them from the sands. The house is a very large and beautiful specimen of Samoan skill, and is thoroughly comfortable. I must confess that I am rather at sea as to their social laws, and also their laws of property; for instance, this house I am in seems to belong to Pua-elo, and yet it is inhabited by at least thirty people, all of whom seem to be on perfectly friendly terms. A wonderful system of practical communism obtains here; if a native gets money, or anything else, he straightway divides it amongst his brothers, and cousins, and uncles, and sisters, and so on, and the idle ones, knowing this, will not work. The missionaries say that as long as this system continues the people will not advance, which perhaps after all is a consummation *not* devoutly to be wished for, as there

is not sufficient inducement for a man to set to work to cultivate more cotton or maize than is necessary for his own immediate requirements.

This house is divided into two by a stiff screen, in a very unusual manner, the meaning of which, at first, I could not understand; but I afterwards learned that Tamacessi, who is recognised as king by the Old Party, is living here, this house having been set aside for him during his stay at Fasitoöuta. A Samoan house is not overcrowded with furniture; in fact there seems to be nothing but the mats on the floor, the screens for closing the openings between the posts at night-time, the low wooden pillows, and plenty of *tappa* for coverings and mosquito curtains, and last, but not least, the great wooden *kava* bowl. It is somewhat strange that a people so far advanced towards a certain civilisation should never have arrived at the making of pottery,—even the rudest kind is wanting here; coco-nut shells and wooden bowls seem to be always used instead.

Before we left Apia we heard that the Old Party was about to instal their king with great ceremony to-day, but upon enquiring, through Pua-elo, we learned that it was put off for some little time until an important meeting of chiefs has taken place. The Old Party is numerically stronger than the other, so I am told, but the foreign powers recognise, as far as they care anything about it, the King Party as supreme. My sympathies, I must say, go with the Old Party, who are strongly conservative, and wish to keep their country to themselves, and their customs unaltered. Directly that Tamacessi is crowned, or whatever they do as an equivalent for that ceremony, they mean the war to become very active again.

As we were sitting in the shade waiting for the

oven to be opened, a party of warriors came in from the bush in full war dress; they had been out reconnoitring, and seeing if by any lucky chance they could get a "head." Unfortunately they have not succeeded; had they brought some, I could have been thrilling, with every gory detail, quite in war correspondent style; they have had very good luck during the last few days, and the place is still much excited over their captures. They are a splendid body of men, of grand appearance, and with forms beautiful enough for artists' models; they made a fine show as they came marching in one behind the other. All their faces were blackened and painted, so that one could hardly recognise their features; this is the reason, I believe, it is done,—that the enemy may not know with whom he is fighting. They had but very little clothing on, as it would be so very inconvenient in the thick growth of the bush, but all are tattooed and wear their best ornaments, and besides these each of the party has a piece of red material twisted in his long and well kept hair to distinguish him from the King Party, which wears, like Prince Charlie, a white cockade. Some such badge is necessary in a civil war, to prevent members of the same faction from slaying each other. Savages they certainly looked, with leaves and grasses woven about them, but savages that I have become very much attached to for their sterling qualities and courteous ways. One of them, who is a big chief and Pua-elo's uncle, came into the house we are in, and soon settled down very peaceably to mending one of their pliable woven fans, which he afterwards gave to me, and which I am now using. It is a very useful, and indeed necessary, article in a Samoan house, where the flies are such an insufferable nuisance.

We had an excellent meal from the oven, of all sorts of queer native dishes, in return for which we gave them some of our, to them, equally strange food; and then, after a little sleep, somebody fanning the flies away all the time, we strolled out to get a bathe in a pool of fresh water, the position of which was described to us. As we walked through the town we saw what a terrible amount of damage was done a few months ago when the King Party made a descent upon this place and effected a landing. Many of the finest trees are standing only as stumps; the bread-fruit trees are chopped down; and the tops of the cocos being hacked off, they stand now, drearily enough, like so many telegraph posts. When one party for a time gets the upper hand, the first thing to be done, after they have secured whatever property they can, is to cut down the trees and destroy the plantations of their enemy; this has been effectually done at Fasitoöuta, but a bountiful nature is quickly flinging a cloak of green over the nakedness of the place, and in a few years it will be as beautiful as ever. Poor Pua-elo was bemoaning the loss of a grove of fine palms that was her property, the whole of which has been cut down.

We found the little freshwater pool that we had been directed to, but it was so evil-smelling a place, and so muddy and stirred up by previous bathers, that we preferred a dip in the sea, which was only a stone's throw away, although it was very shallow for a long way out. Before we returned to the town I made a little sketch of the place; which fact, in truth, was not worth mentioning except for the very ridiculous result it nearly caused some time after. Nobody objected to my doing it, or had reason for so doing, but it brought about a very funny episode.

Coming back we found a band of boys playing *totoga*—rod-throwing—which, simple as it seems, is really a very difficult art. The rods are long and very light, having the bark peeled from them, and are thrown along the ground and made to travel thus an astonishing distance, considering their little weight. Of course I tried to throw; and also, of course, I could not do it half as well as these little lads, although I put three times the amount of strength into it. When I endeavoured to copy them exactly and throw as they did along the ground, my rod would stick in it and remain there, ignominious and quivering.

I do so love the children,—they are such delightful little imps, half frightened of you, and yet anxious to be spoken to; the very little ones who have never seen a *Papalagi* before keep at a discreet distance, and rush away terrified if you chance to move in their direction. Both boys and girls act as nurses to their still younger brothers and sisters, and it is a pleasant sight to see the way one naked little lad will pick up another still smaller and carry him on his hip. I have made friends with a dozen or so of the children, and had them swarming about me to examine the wonders of my pockets and my possessions generally. Their brown skin seems to glow in the sun, and they feel quite hot to the touch, and yet the heat does not seem to inconvenience them in the least. The two men who came here with me went into the house to sleep, being too *vavai* (hem, idle!) to play with the children; so I alone had my hair and ears and hat decorated with flowers by these jolly little urchins, some of whom only muster up courage enough to rush at me with a flower and thrust it into my hand and dart away again. In trying to talk with these little

boys and girls I learn a good many words, as they are all anxious to tell me the name of anything. It seems a mystery to them that I cannot understand all they say to me, and I fear they think me a poor sort of creature in consequence.

Attended by my suite of little maids and pages, I went onto the beach and watched, sitting on the remains of an old carved canoe, a number of men playing at a game like the Tongan *tolu*. This game consists of two parties of men, five or six on a side, who throw heavy spears so that they shall stick in the top of a stump of wood about five feet high; which stump in this case consisted of the trunk of one of the coco-palms hacked down by the King Party a year ago. The side which in three throws gets the most spears into the stump wins. They became very excited over this game, just like a band of jolly boys, especially towards the end of it, when the last one or two men try to knock out the spears of their opponents, and when success or non-success is hailed with shouts and laughter from one side or the other.

Whilst watching this interesting game a great booming drumming noise was sounded down the shore some little way, in the most populous part of the place, where most of the warriors live; this was to call the scattered ones to the evening games, which take place in the large central square round which the houses are thickly built. We all walked down for the first time to that part of the town to see the sports, and there went into the large house of a certain chief, Sağapolu by name, who is the "talking man" of the place. These fellows are distinguished by the immense heads of hair they grow, which hangs down their backs in soft and silky manes, not at all harsh or coarse, as I expected, and also by

carrying a long stick on which they lean when talking, and a fly-whisk in the other hand, or frequently over their shoulder. These are the speakers sent by every town to any of the great meetings to represent the voice of the place, and it is they who entertain distinguished guests and travellers. Sagapolu is a remarkably fine man, with regular clear-cut features, a grand figure, and a great mass of yellow hair, which looks strange with his dark skin. Naturally their hair is dark, but, as in Tonga, they make it light with lime; it is always kept in beautiful order, and washed with the juice of a *moli Samoa*, a sort of small shaddock that has spherical cellules in the pulp instead of the usual oval ones. They take two of the fruit and beat them together until they are soft, and, tearing one of them in halves, they rub the fruit on the head, when the juice of it forms a delicious sort of lather, which makes the hair soft as silk and pleasantly scented.

This man Sagapolu made me sit next him, and I was as agreeable as possible with my limited knowledge of Samoan; we watched the men in the large, level, beaten square play several sorts of games. One was throwing oranges, which they could do to a great distance. Oranges that fall unripe from the trees, when dried a little, make excellent balls, which can be broken only with great difficulty; these they throw in a very queer way; taking a little run, they throw the orange from behind the back and over the shoulder. The men divide into two parties, one at each end of the long public place, and one throws a certain amount of oranges, which are returned by the others. I suppose Sagapolu saw that I was amused with all this, for after he had with great ceremony, through Pua-elo, who acted as interpreter, asked me whether I would take him as a

friend, he ordered some of the men to form a little *siva* or dance, which they forthwith did, and with which I was so delighted that Sağapolu told Pua-elo to ask whether I should like a big one to-night, and when I said that I certainly should, he said that if I would come down to his house after dark there should be one got up for us.

It was already dusk, and Pua-elo, thinking of the fate of her oven, went on in advance, asking us to come home soon to supper. When the little dance was ended, Sağapolu, thinking that his new friend could not find his way home, led me thither by the hand and then left us. The oven to-night was a very grand one, fowls, ducks, yams, taro, little bright scarlet fish, *faii*, and *palusami;* the two last are excellent dishes made of coco-nuts and different things. *Faii* is the pudding that I had at Faleula, but *palusami* is very different, being made of green taro leaves, coco-nut water, and salt.

When it had become quite dark we returned to Sağapolu's house, where, after we had had the inevitable bowl of *kava*, he ordered large fires of coco-nut husks and shells to be made outside the house, which was not large enough for the dance. We sat just under the eaves, all the men cross-legged, which is a comfortable enough position if you can get a post at your back, but not at all without; it is considered incorrect for women to sit so, and they have both feet put on one side. Up came the music, which consisted of a singer and a chorus of about fifty men, who seated themselves opposite us in a large semicircle and commenced their song. The music is very strange, with queer intervals, and the words are, I should think, extemporaneous, for I know that they introduced us into the song; at certain periods

the chorus all clap their hands with the greatest precision as to time, and some of them have two half cocoanut shells, which they also beat together. Then came the dancers bounding into view and commenced their work; there were only five or six of them, and the dance at first was rather slow and dull, but they soon warmed to it, and it then became very energetic and interesting. The whole performance was not continuous, but in parts, each one of which lasted about five minutes, and each part had a fresh air and chorus, in which the soloist and chorus sing line and line about.

Their dancing consists of a great deal of pantomime,—it might in fact almost be called acting,—and the hips, shoulders, and arms are often much moved without the dancer stirring from the one place; the hands and arms are particularly graceful all through. In each part there seems a *premier danseur*, whose movements the others very closely follow, but it is not always so. They very frequently changed their costume,—that is to say, their head-dresses and ornaments, the rest of their dress consisting only of a very minute piece of *tappa*, and sometimes of a few leaves. To show as much tattoo as possible seemed the object of some of their *pas*. Every joint is supple and active and strong, and they have the freedom of movement of a trained ballet dancer. There was one effect that struck me as being singularly good; the dancers, after a long and well danced scene, went away out of the firelight into the darkness beyond, and, oiling themselves all over, came slowly marching back, so that you saw the fitful firelight just flashing on the prominences of their muscles and nothing else. This was very delightful.

There is one oldish man who is a glorious mimic, and he imitated all sorts of things splendidly, making

us roar with laughter. I asked Pua-elo what was the correct thing to say, and she whispered "*Malei*," so after anything that I thought very good I thus expressed my admiration. This was very well received. One other scene I must write of,—it was so funny and caused so much amusement to the assembled onlookers. It was when the dancers appeared in *lava-lavas* of *tappa* and imitated the women, caricaturing all their little ways and movements. It was really excellent; and we stayed several hours, being most admirably entertained, and the *siva* was still in full swing when we left, and probably would not end until nearly daybreak.

Before we left for our house Sagapolu told me how sorry he was that he was so far away from his own home—he lives a long way from here up country—as he could give me no presents worth having, but that if I would only stay in Fasitoöuta a few days he would get me all sorts of delightful things down. I, in a royal sort of manner, through my interpreter, said that I did not require great presents, but that I should like to have some small thing of his that when I looked at it in my country—a long way off—I might always remember Sagapolu. I believe that it was rather the correct thing for him to offer me all these things, and equally correct for me to refuse them. After this Sagapolu conducted me home again in a manner meet for sworn friends, and I was glad enough to take to my mat after scribbling for an hour in my pocket-book all this long rigmarole that you have just read. If it is at times incoherent think only how sleepy I am as I write.

The next day was intensely hot, so hot that I hardly cared to go very much out of the house, except in the early morning, when we all went for a glorious swim in the sea and a little walk about the town, which is

very much larger and more populous than I at first had thought. At about twelve I, being the only one awake, was invited to go through the partition and take *kava* with Tamacessi; through I soon went, and was seated in the circle next the great man himself. As I said before, there is a great deal of ceremony about the making and serving of the *kava*, and the etiquette of precedence in being served is very strict. Upon this occasion no formality was relaxed; everything was done in its entirety, as the drink was for so great a man. Before to-day I have always been given the bowl first, but this morning I was made to know my position by being served only after Tamacessi. Whilst I was in that part of the house a messenger came in to the king elect, and with great respect, sitting down some way off, he delivered his news. Such a cheerful-looking fellow, whom I delighted by drawing his portrait in pencil in my pocket-book, in which picture the interest of Tamacessi himself was so great as to break through the certain amount of reserve he had thought fit to wrap himself in before. This man, Tolefoa, had hair eight or nine inches long, tied tightly, close to his head, which made the wavy mass form a sort of turban.

Last night Sagapolu asked me to visit him some time to-day, so in the afternoon, after a walk on the shore in the shade of the trees with Pua-elo and Moe, and one or two others, unattached, I started off alone, without my interpreter, and went to his house. He was not in the same building that we were in last night, which is the *Fale-tele*, or public reception and lodging-house, but some girls pointed out to me where his house was, so over I went to the other side of the square. When I arrived Sagapolu was out, but a woman that I took to be his wife, and a dozen or

so of other people in the house, did their very best to talk to me and entertain me until his return. The chief man of the party presented me with a huge lump of *kava*, which I, with thanks and expressive pantomine, returned to him, signifying that I wished he would have it prepared for drinking; so he sent out for a young girl, who came in, and, seating herself, commenced at once solemnly to chew it. By this time Sagapolu had returned, and seemed very pleased to see me, seating himself by me, and talking as much as ever he could.

Before he came in I made, mentally, a ridiculous mistake, on seeing upon the floor a three-pronged wooden object about nine inches long, which I took for a fork. Soon after my friend had appeared in the house he untied the string that bound his hair, which fell in a great soft shower right down his shoulders, and began—innocent little vanity!—to comb it with this "fork;" anything other than a similar instrument would be of little use, so long and thick and wavy is his hair. I am sorry to say that I had thought this great golden peruke was false until I felt it, and found that it was not so. Many of these fellows who have not good crops of their own select girls with fine heads of hair, and forbid them to cut it; when it has grown long and thick they sheer these unfortunate damsels, and, bleaching and colouring the hair, make unto themselves glorious and gigantic wigs.

After some time, when the *kava*, with all its attendant ceremonies, was finished, I said my *kofaa*—farewell!—and, leaving the house, rambled off for an hour or two in a part of the town I had not been in before. Here I visited several houses, the people all being anxious for the *Papalagi* to come and see

them. Several of them produced some trifle, which they gracefully begged me to accept, and in one of these brown and shady houses I was found by Pua-elo, who came running to look for me to say that the boat was quite ready, and that we must start at once, or night would be upon us before we could get home. So I bade farewell regretfully to my friends, and walked to the beach, where I found a great crowd collected to wish us a last *kofaa*, and see us set sail.

I did not see Sagapolu amongst them, and, thinking he had forgotten all about the presents, I was rather rejoicing in the fact, as I had nothing whatever with me that I could give him in return. Never had I made a greater mistake; for as I was stepping into the boat, really sorrowful at leaving this charming and friendly people, Pua-elo said, "Oh Alfiedi! wait for Sagapolu; he is coming tlough the town with a plesent fo' you to take away." So I sat myself down on the edge of a big carved canoe with Pua-elo by me, surrounded by the crowd of natives, and with all my little boy and girl friends, who were there to see the very last of the tall *Papalagi*. In a few moments up came Sagapolu, official staff in hand, and with fly-whisk on shoulder, followed by a man bearing the gifts.

With their free and royal step he approached and made a speech, to which all attentively listened; being interpreted, it was to the effect that he was far from his own home and had nothing worthy of offering me, but that, if I would accept these few poor articles he would be proud, and that Tamacessi had sent me some fans, which he hoped I would take from him. The present consisted of beautifully-printed *tappa*, tortoise-shell rings, carved combs, and lovely woven

fans. I, through Pua-elo, made a few remarks, to the effect that I should ever value these as the gifts of friends, and that I should take them to my home over there, pointing west, and always keep them. I said that I had nothing with me that I could leave them in remembrance of me, but that I would send from Apia, by Pua-elo, some *Papalagi* articles that I hoped they would keep in memory of me. With this and a last *kofaa*, Sagapolu marched away, and I turned to the boat. It was a lovely evening; the sun was setting gorgeously behind the town as we pulled off, and the group of people and little children on the shore waving their fans and *tappa*, and calling their farewells, made up a charming picture that I hope I shall never forget. There is something of sadness in thus leaving a beautiful spot where one has received nothing but kindness from a gentle people, and knowing that you are sailing away for ever.

We left to-night, instead of to-morrow morning, hoping to catch the land breeze that generally springs up at sunset, as I was still too poorly to be of much use at the oar. We sailed along pleasantly enough for about an hour, when a squall, with startling suddenness, sprang up, and we put in hastily for the shore. The sky had become overcast and the night dark, so that we could only just see the white line of the sand of the beach, when suddenly we struck a rock, the boat heeled over and filled, and we all found ourselves in the water, and had to flounder to shore as best we could. I seized this leather pocket-book with all these invaluable notes in it, which I saw floating by me, and then all of us, laughing, found ourselves safe on land. We were in rather a miserable condition—wet through to the skin; but fortunately it was not at

all cold, as we had all of us to go into the sea again to collect our different goods, and also to get our boat ashore and empty her. Pua-elo saw a light glimmering through the trees, and, looking about her, said that she knew where we were, that it was Tufulele, and that not far off was the house of a white man, who had settled there years ago, and married a Samoan wife. When we had gathered together all our floating property, we walked towards the light, and presented ourselves, in a damp and dripping condition, to the very hospitable Englishman, who received us most delightedly, and has put us all up for the night. Living in the house is a native girl, who has been stone-blind from her childhood, and it is one of the most wonderful things I ever witnessed to see the way she goes about the place and does everything for everybody, almost as though she possessed an extra sense instead of lacking one.

Next morning we were up with the sun, and got our boat ready for a start; and a couple of hours after rising we said good-bye to our host, and pulled off with the tide for Malua. I was glad to find my fans and *tappa* but little injured by the upset, as they had been tightly packed in a leaf-basket. The sea was as blue and calm and radiant this morning as though it never could be rough and squally, and the air so soft and light as though that could never rise above the softest zephyr. At Malua, where we called, we were fortunate enough to get two boys to pull us to Apia, as I was too unwell to be of any use, and there was no breeze with which to sail. These young men, being in the employ of the missionary, are supposed to be strictly neutral in political affairs, but whenever it gets the chance the Old Party kills one

of them; and only last week they shot a youth who had climbed a tree to elude them, and whose head was at Fasitoöuta whilst I was there, and of which they boasted as though it were the head of a hero.

When we reached Faleula we found that one of the five little outlying forts was empty, so we entered and saw that the whole building consists of one rude room. These forts are built of rough but very strong logs, and are raised about four feet above high water, so that we had some difficulty to get from the canoe to the little doorway. In the walls are loopholes for the use of the guns that they have in plenty. The forts must be of great service to the King Party, if well guarded, which they do not appear to be. It would be almost an impossibility for the Old Party's canoes to pass between them; but I think that they are, as to-day, often left quite untenanted. The town of Faleula looked very beautiful from the shade of this little fort, through the framework of the entrance, a quaint foreground being made by the other little buildings over the water that lay between us and the land. Although four out of the seven of us were Samoans, and wore Samoan dress, I suppose the people on shore must have seen we were not enemies, as no one came after us.

We could stay no length of time at Faleula as we feared missing the tide, so I did not again visit my friends there, but came straight back here to Apia. I was very surprised to find a little crowd of excited people on the wooden landing-stage at the hotel, which sumptuous building is erected on the very edge of the sea; they ran down and received me gladly, for a native had come in this morning with a rumour that I had been sketching the fort at Aana, and the Old

Party, thinking I was spying for the King Party, had taken me prisoner on account of this, and were keeping me closely confined there in durance vile. My friends in Apia becoming very anxious about it, had collected a boat's crew, and had got a large whale boat ready and armed to come after me to Fasitoöuta if I had not returned this tide. The consul has had to go away to Savaii, or, they say, he would have been after me directly the report came in this morning. The Old Party are not too careful of what they do to those they consider spies: hence this anxiety. There was I, being pleasantly and kindly entertained at Aana, whilst this report was being believed in Apia. How grieved I am that it is not true can well be imagined. If they had refused to give me up the gunboat would have come down and bombarded the fortress, and I know not what else of delights. Woe is me! my home-coming was far more prosaic and matter-of-fact, for I had to come straight to my room, and, entering my mosquito curtains, have remained here all day.

During the remainder of my stay in Samoa I was not able to go any big excursion, or take any very long walks, as those I had done seem to have knocked me up, the heat is so moist and intense. I very much regretted that I was unable to visit Falepomaa; and I wanted much to see Abolima, which from all accounts must be one of the loveliest spots on earth. It is, they tell me, a great extinct volcano that rises from the sea, one side of which has caved in and admitted the water, so that you enter through a narrow passage and find yourself in a land-locked harbour surrounded by a lofty amphitheatre covered entirely, from the sea-level to the highest peak, with most glorious verdure. This island is one of the Samoan natural fortresses,

and should be quite impregnable if defended with even moderate skill and courage. From time immemorial it has been their chief stronghold, and it is to-day fulfilling its ancient function.

But although I have been confined to Apia and its environs I find more than I can examine in all the time I have; and although there seems but very little to record, there has not been a dull hour amongst the many I have spent here.

One morning I turned out all the stores to find some large Jews' harps to send to the serenader in Vavau that played so well on that Mosaic instrument. I found some mammoth ones that I know well will rejoice his heart and make him to be envied of all men for miles around. And then one evening in sailed a large labour vessel from the Solomans, New Hebrides, and New Britain, with the wildest load of men ever collected in ship together. They were all in their native dress, or rather undress, some with an exaggeration of indecency impossible to describe. Their ornaments were unique, of gorgeous shell and pearl and tortoise-shell. The skipper of this ship had brought away hundreds of beautiful clubs and bows and arrows and other objects, and besides these some very beautiful birds, "the like o' which," to use his own expression, "had never before left th' islands."

Here is the very interesting Roman Catholic mission station and its fine plantations, which I visited one day. They are kept in an admirable manner, and it is delightful to see these tropic plants growing under cultivation, they form such glorious masses of foliage. For instance, what can be lovelier than a fine clump of bananas growing together, or a marshy piece of ground covered with the broad spear-shaped leaves of

the *taro?* In this one plantation grows a very diverse list of plants and flowers, cotton, maize, bananas, sugar-cane, nutmeg, arrowroot, and tapioca—all thrive and flourish; whilst the whole place is beautified with flowers, white daturas, jasmines, bushes of a lovely orange-coloured flower, wreaths of blue clitoria, and everywhere the glorious crimson of the hybiscus glows amidst the green.

I am told here that the Roman Catholics are reducing the population, in whatever places their creed is accepted, to the same craven priest-ridden condition that their teaching always seems to tend to; and it is a point of great soreness to the Protestant missionaries, who bore the brunt of the fray, that another Church should have obtruded itself upon an island, causing endless dissensions, where the work of Christianity was being so well done, and whilst there was, and is, such an extended field of labour a little farther on still unworked. It is a pity that some arrangement could not have been made, for although some may not consider the work advisable or necessary, all will admit that if it has to be done it is foolish to have a divided camp, and two religions taught where one would do. So strong is the bitter feeling between these two branches of the same Christianity, and so unfriendly the teaching of the leaders of each towards the other, that I am assured it will be the chief cause in time to come of all warfare between the Samoans, who seem doomed to trouble of some sort, political or theological.

The last few days I have been talking much with the natives and people living here, and I find—I am not speaking thus from patriotic feeling—that everywhere among the Samoans the English are more respected

and more liked than any other nation; and very many natives with whom I have been able to speak have expressed a strong wish that England would take the islands under her protection. They are very much against the idea, often promulgated, of German annexation, as they hate the Germans as a nation, and consider them both cruel and mean. Somehow or other the Germans have acquired many plantations, and claim vast tracts of land that are yet uncleared; and besides this they possess a very great proportion of the trade. What could the unfortunate Samoans do if Germany intimated that she was about to take possession of the whole group, hating though they do the very idea? It would be another case of Tahiti and the French occupation. I cannot understand how it is that England will not see the vast importance of Samoa to her, lying as it does directly in the line between New Zealand and America. And then, too, it is the often expressed wish of the natives themselves that some such protectorate should be formed.

As for the people themselves, they seem a very healthy race, and certainly their physique is far finer than that of the average European. Perhaps it is that only the strong and healthy survive childhood; but be that as it may, they certainly impress one with their fine development. I have, however, seen a good many cases of *fefe* (*elephantiasis*); some one or two of the sufferers were terrible objects, scarce able to move. Fortunately the disease is quite painless.

I regret having been unable to see a single specimen of the *Manu-mea*, the *Didunculus strigirostris*, which is the last living representative of the Dodo family. It is a dark blue pigeon, with pink legs, that is still to be found in Savaii, and in one sole part of

Upolu, to which I received an invitation to go for the purpose of shooting one, which I certainly should not have tried to do had I been able to pay the visit.

Much of my time, and all my remaining evenings, were spent with Leapai at his house, and many were the interesting talks we had over our *kava* and tobacco. Last night was my last night in Samoa, and I am quite sorry at parting with such excellent and pleasant companions, as he and his wife and one or two other Samoans have been all the time I have been here. Just before I left their house Leapai and his wife gave me a lovely fishing line, of their own manufacture, which I am always to keep and often use in my own country. Ah friends! I fear its great thick hook of bone will not be attractive at home to its prey, as it is trimmed with feathers to the taste of the Pacific fish.

All my packing is finished, as we are ordered aboard at ten o'clock this morning, and sail for Fiji. I have had to collect my garments from Gilbert and Stodart, and also to return to them those of theirs I had borrowed. [Which latter part I evidently did not do thoroughly, as I found myself only the other day endeavouring to don a stupendous collar which gashed my ears when I adjusted it, and which I found on examination to be one of Stodart's "joys."] We have lived in a sort of communistic fashion ever since we left New Zealand, Gilbert wearing my shirts and I his shoes, and somebody else with my trousers, and I with their hat, and so on; so that it has been no small labour this early morning to sort out our rather confused wardrobes.

As I write all this nonsense on the verandah of the hotel I watch the canoes passing and repassing

just below, with their beautiful paddlers all tricked out in *tappa*, flowers, and smiles, bringing in their loads of oranges, nuts, and golden bunches of bananas from distant parts. It is strange to think that they will go on doing just the same to-morrow and next year, when I shall be so many thousands of miles away from all this light and warmth and beauty. There is one canoe just now, paddled by two boys and a man, which is charming to watch, for they are amusing themselves by paddling right out reefwards and then being carried into shore rapidly on the rollers. Oh why was I born a grovelling Englishman?

CHAPTER IX.

FIJI.

It was still quite early in the day when I finally said "adieu" to Samoa and all my friends there, and went on board the German barque *Carl Hoffman*. I had said good-bye to all the *Caledonia* crew, who are sailing for Savaii to take in copra, and quite miss Stodart already, whose cheerful face has never worn a frown nor looked glum the whole long time we have been together. Fortunately Gilbert is coming with me as far as Levuka, or I should feel solitary indeed. After we got aboard we stayed an hour or two waiting for a breeze; I was lying down on the deck in the shade when some one told me that a native in a canoe was enquiring for me, so I went to the side and looked over, and there below me, in his little outrigger, was the faithful Leapai, who had paddled out to see me once more and again say "good-bye." He had brought me a box of oranges from one of his own trees for my consumption on the voyage. Now, are these natives kind or not? Soon after I had seen the last of this good fellow, who gleamed like old gold bronze as he paddled off, the pilot came aboard, and as a little breeze had sprung up we weighed anchor and slowly forged out. We were as nearly as possible on the reef, as the breeze fell dead just as we were going through the passage, and the pilot and skipper were both in a state

of the wildest excitement. I should not have been particularly sorry for my own sake if we had done so, as it would have been an excuse for a further stay in Samoa. Wrecks have frequently occurred there from exactly this cause, and the crews have gone comfortably ashore in the boats, and left the ship helpless on the reef. However, this was not to be our fate, as we sent out the boats, which, by incessant towing, managed to keep her off until a light air sprang up and we moved into deeper water.

I must be a veritable Jonah, all voyages protract themselves so inordinately when I am on board; here we are—nine days out from Samoa and the first islands of Fiji only just in sight, when we ought to have made the passage in half the time. The last day or two I have been fearing that my stock of books would fail me, and then I should have had a dull time of it, for besides a few German books of navigation, the only literature I can find on board is a terrible story portraying the life and adventures of a certain Jane somebody, a virtuous damsel in a coal district, written in twaddly English and "goody-goody" style. I certainly did begin this romance, but when Jane refuses the offer of marriage of an enormously wealthy man in a coach-and-six, who falls desperately in love with her for doing something silly on a pit bank, just because he was not baptized, or confirmed, or something of that kind, I thought she was too big an idiot for even this hot weather, and flung her with contumely headlong down the companion.

It has been very hot, and some of the days with hardly a breath of air stirring.

> "All in a hot and copper sky
> The bloody sun at noon,
> Right up above the mast did stand
> No bigger than the moon;"—

which is perfectly true; the sun does look ridiculously small, but it is enormously hot all the same. The tar oozes from the caulking of the deck in little bubbling patches, on which you sit when the shade of the sails has moved, and to which you, need I say it, pretty firmly adhere, somewhat to the detriment of your trousers. Those that I have been wearing—the combined result of age and friction—have holes in them about the size of a plate, and the result of reposing on one of these tarry little man-traps is singularly unpleasant. Hot though the days have been, I almost think the nights are worse, as this good ship, the *Carl Hoffman*, was originally built for trading to Siberia, and since its cruises to Archangel and thereabouts there has been no alteration in its system of ventilation. There is a little artful cupboard, in which I lie awake at night, so skilfully contrived as to exclude every breath of heaven; in this I am supposed to find "Nature's sweet restorer," but it is needless to say I do not. After enduring it for half an hour, all the time vigorously fanning myself, I fling myself in an agony of perspiration on to the cabin floor, or fold myself, like a carpenter's rule, on the little four-foot sofa, if some other fellow is not there before me, and stay there all night. Everybody says it would be madness for me to sleep on deck, so I give in for once to the popular voice. Oh, these sweet tropic nights on an Arctic vessel!

The days have passed in a wonderfully monotonous manner — hardly a fish or a bird to be seen, and nothing to break the time but the arrival of the meals. Certainly the sugary soups, raisined stews, and other odd messes then presented, do raise a little curiosity in our breasts; but that is the only emotion we experi-

ence. So dull has everything been that I have not cared to write anything in my log. If only I liked to invent little episodes, such as falling overboard and swimming about the ship an hour or two before I was picked up; or desperate struggles with savage sharks; or even an encounter with that useful Chinese pirate junk that story writers of the Eastern seas, regardless of improbable longitude, seem always to keep handy to produce when their tale grows dull,—I might make my journal thrilling; but I prefer to keep to the unemotional truth, and hope that risk and dangers will arrive when I get amongst the cannibals.

We made the Namuka passage yesterday, but had to shorten sail at night, as the skipper was naturally too anxious to risk his ship in trying to make a moonlight passage, as the navigation is made dangerous and difficult by the many shoals and reefs hereabout; and this morning at sunrise, when I came on deck, I found we were all amongst the islands. Most of them are of good-size, green, pleasant-looking, and mountainous; consequently their general appearance is not so distinctly tropical from the sea as the low lying, coco-palm covered coral islands; but for all that they are very beautiful, particularly Ovalau, the island on which the capital, Levuka, is situated. It is one of the smaller islands of Fiji, being only about twenty-eight miles in circumference; but it is very mountainous and in places precipitous, and the great gray summits of the topmost crags are often veiled with clouds. All the hills and valleys are covered with luxuriant green, and the shore, as almost everywhere in the tropics, is fringed with a deep grove of palms.

Levuka itself is a much larger place than I expected to find it; the whole beach is lined with houses, of

course all of wood, but many are large and well built. At the extreme left of the bay, from the sea, is Government House, very prettily situated and comfortable looking; and all the Government offices are there too, with beautiful shrubberies of crotons and other gorgeous plants about them; and right at the other end of the bay is the hotel, Sturt's Hotel, at which I am staying. A very comfortable place it is too, with a huge and shady verandah, where people seem to sit all day and look at the natives passing up and down in front of it. I was rather disappointed to find the place so large and civilised, but I am told that I have only to go into Colo, in the mountainous interior of Viti Levu, where I can see real savage Fijians, and where I can still run an excellent chance of being eaten. This year's *Australian Handbook* says that "To-day finds six-sevenths of the Fijians professing Christianity, cannibalism has ceased since 1854, polygamy is abolished, and the idol worship of past ages has given place to the worship of the true God, and generally there is peace. Many of the converts are said to maintain a consistent walk; and in all a great revolution, in outward morals at least, has taken place even if there has not been a real change of heart. *These remarks scarcely apply, however, to the tribes of the interior of Viti Levu, who are variously estimated at from* 7000 *to* 20,000, *and have hitherto held out against any advance of civilisation into their country.*" The idea of visiting these very parts has enormous charms for me, but I do not see the slightest chance of my getting there, so many difficulties have to be overcome, and so many dangers too, that I suppose it is best for me to stay in civilised Fiji and see that.

We did not land directly we arrived, as there are

very strict quarantine regulations enforced since the terrible outburst of measles that occurred here some time ago, which carried off 50,000 of the natives—an awful visitation, that could thus at one fell swoop kill a third of the whole population of the group; and strange too that a disease of such small importance to us as measles, should prove so disastrously fatal to Fijians. After getting all my luggage to the hotel, I was soon out into the town to explore it and see of what sort are the people. The Fijians strike me as being a totally different race from the Tongans or the Samoans, and, as far as appearance goes, are very much the inferior of those peoples. I am not an ethnologist, but I should describe them as approaching the African type; they are very dark, with a blackish look in the colour of their skin which is quite absent in Tongans. Their noses too are flat and broad, and their lips rather protruding; their hair is not wavy like that of my friends, but is woolly and fiercely frizzy, and they dress it out into a huge sort of mop from the back of the head, and into this they stick feathers and flowers extensively. The women have theirs cut short, or done in little, tiny, twisted bits, that hang down like pieces of thickish string, which is not a particularly beautiful fashion, as may be imagined. I have indeed hardly seen a pretty-looking Fijian woman all day, although I have been into most parts of the town. The men paint their faces to a great extent and in a very queer way, dabs and bars and stripes of red or black, but many of them with only the forehead covered with a shiny black colour. In the town the men have to wear a *sulu*, from the waist to the knees, and the women a somewhat similar one, with the addition of a little loose cotton jacket; in former times they wore scarce any

clothing, but about the European settlements now-a-days they wear plenty. The chief ornament that the men affect is a great circular boar's tusk, which hangs from the neck, and has a savage and good effect, gleaming white on their broad black breasts. .The method of growing these tusks is ingenious. They catch a boar when he is quite young, and knock out the teeth in the upper jaw, which in the natural course of events would wear away the tusks in the lower one, so that, as the boar grows older, the tusks get greater and greater, and more and more circular, until they are considered sufficiently curved and sufficiently large, when the rightful owner of these decorations is killed and has his teeth extracted. The nearer that the tusks approach to a circle the more beautiful they are considered. Not having as yet been amongst the natives, I cannot say anything as to their manners, hospitality, and so on, but I hope to be able to do so later.

Ovalau certainly is a most lovely island. I went in the early evening for a walk up the steep hill behind the town, and gained a very beautiful view from there of the mountains, sea, and farther islands. In one direction you can see the great mountainous island Viti Levu, "Great Fiji," where, in the interior, my friends the cannibals are; and in another direction Wakaia, a long island that lies in front of Levuka, about fourteen miles away; and then, far away to the north, you just can see the mountains of Vanna Levu, "the Great Land," that lies fifty or sixty miles away. The hills are covered everywhere with a wonderful growth, as rich and luxuriant almost as that of Samoa, although the heat here is not nearly so oppressive. Just now, too, the "Trades" have set in, which makes the weather much cooler. All about the town you see

houses chained and fastened down, to keep them in their places during the hurricanes which visit the group annually, and are one of the chief drawbacks to its prosperity. They had one here some little time ago which sank I do not know how many ships in the harbour, and did great damage besides; this was the hurricane we were to have encountered going to Tonga, but which we so fortunately escaped.

I have just come in from a concert, and a very good concert too, at which the landlady of my hotel sang very beautifully, in a lovely, pure contralto voice, and have since been holding a conversation with some of the performers, all of whom were much interested in any musical news I could give them from Europe. They have formed an immense idea of Sims Reeves, and consider him a constant thorn in the side of "all them *I*-talian and foreign singers." So has ended my first day in Fiji—in not at all a Fijian manner.

The last few days I have spent in and about Levuka, whose beautiful scenery and bush give me plenty to occupy myself with. I will admit that I have passed a rather idle time, but after having been some months in the tropics, and exerting oneself a good deal in the intense heat, one's energy is not quite so great as it was, and I have been recruiting myself for the undertaking before me. I have done all the things one ought to do—gone to church, where I was seen of everybody, and to Government House, where I was seen of nobody, the governor being unfortunately ill, and to the house of a man to whom I had an introduction, where I have been inspired with the feasibility of my idea of crossing Viti Levu, and seeing those very parts and peoples that I wrote of a few days ago. There are no white people there, and no

one is allowed even to enter the Colo district without a permission from the Government; this, however, I shall be able to obtain. The reason of this prohibition is that all that savage part, until quite recently, was in a state of open warfare with the whites; and although, as we have occupied the group, we must put down such risings, I cannot help feeling that my sympathies go with the mountain tribes.

Fiji was handed over to England "*for a consideration,*" by Cakobau (Thakombau), who claimed the sovereignty of the whole group, and power to dispose of it as he wished. The Colo men say that they were always independent; and that, although Cakobau was king of some of the isles, and that Rewa was subject to him, he certainly had no right to sell their birthright along with his. This statement was not noticed by England, and the unfortunate mountaineers have had to be suppressed, and a Fijian village, in the lately disturbed district, has been fortified and occupied by a force of friendly Fijians and an English officer in command, to instantly quell any revolutionary risings in the interior. As it is not considered particularly safe to travel in those parts, any one wishing to do so must receive the Government permission, and must report himself at the fort at Natuatuacoko as being there. I am immensely excited at the thought of going there, and although many have tried to dissuade me, I have determined to make the venture. Up till now I have got on admirably with these Polynesian peoples—and why not with the Fijians? They certainly are uncivilised and cannibal, but it is not as though I had done anything to offend them, and I shall take care to be as pleasant and cautious as I can, for I am told that they are a treacherous lot.

A man who was up there in the war-time, four or five years ago, tells me that you still see the towns with the human bones on the palisades, placed there as a warning to all foes after the cannibal feasts, and many other such pleasant reminders of their innocent behaviour. Now, an expedition of this sort has an irresistible attraction for me: a completely new country to be gone through; savage tribes to be seen in their original savagery; some danger, and to have to take care of oneself. Life is not valued at a high rate here. To show how little, and also to give some idea of the awe a chief is held in, I tell this:

Some years ago one of the big chiefs was out at sea in one of the great canoes they build, when by some mischance it was upset, and leader and men found themselves in the water, and unable to right the canoe; consequently they had to swim to the nearest land. This chief was one of the jolly old clubbing cannibal sort, and, not wishing to become food for the sharks himself, made his crew of forty men, or thereabouts, form a circle round him, and thus swim the mile or two that lay between them and the shore. As the sharks gradually took one man off after another, the remnant of the devoted band closed up, protecting the life of their chief to the last. Thus he safely arrived at land, but his crew was reduced to four or five, all the remainder having been picked off and eaten by the sharks. This happened only a few years ago.

Before I go on any further, I must explain the orthographical method invented by the missionaries to express Fijian words. All the vowels are pronounced in the Italian manner. B is sounded as though it had the letter M before it, thus Bau is pronounced Mbau; the letter C is equivalent to a soft TH; D is pro-

nounced ND; G as a soft NG; and Q as NG too, as far as I can make out, but with a hard sound, on the few occasions that it is used. All the remaining letters that their sounds require are pronounced as ours. This method is rather awkward at first, but one soon becomes accustomed to it.

There is plenty of fresh water in Ovalau, and good streams flow quite close to Levuka; this is one reason why the present capital is preferred to Suva, the new one, where water will have to be brought from a great distance. The removal of the seat of government from Levuka to Suva has been decided upon as there is really no room for Levuka to extend itself; it already lines the bay almost as far as it can go in both directions, and there is no breadth of land before you get on to the mountains, of which the island chiefly consists. At one of these streams Gilbert and I went to bathe before he left for New Zealand. It forms, some little distance up one of the hills, a most lovely cascade,—the Waipo Falls,—the way to which lies through many flourishing *dalo* plantations, in which the water of the stream is partly used. Just before the falls are reached one has to cross a smooth, steep, bank of rock, that is still difficult to pass over in one's shoes, and which used to be very dangerous until Commodore Good-enough, who was afterwards killed in "the Islands," had rough stepping places hewed in its face. The water comes dashing over the rocks from a great mass of exquisite greenery, and falls into a large deep pool where it seems swallowed up, and then again from this it rushes, tumbling down a great height into another pool below. Most beautiful trees grow all about the falls, in places overhanging far the rocky sides, and glossy plants and graceful creepers cover

the trunks, and festoon the face of the rock. Looking seawards, over the mass of coco-palms that seems to fill up the little valley, you see the bright coloured water, blue and green inside the reef, and then on the horizon lies a long and broken island against the pure clear sky. The "Trades" are blowing, and the climate is, just now, perfection.

Gilbert has left me and returned to Auckland, so now I am all alone, having lost my last companion; he has been very ill the last few weeks, and is anxious to get back. We had quite an exciting scene at the last. I was urging him to make haste, but he said "Boats are always late in starting," and would not be hurried. I was carrying some of his last collected *impedimenta* the half mile or so that is between the hotel and the boat, and when we were about two hundred yards from the wharf we saw the boat slowly moving out. I started off running, shouting to them to stop, but they would not do so. Poor Gilbert was in despair, his legs doubling up beneath him from weakness, and his knees quite giving way. However, we managed to tumble him into the boat I had signalled, and, flinging his bags in after him, I saw him pulled off, quite speechless, to the ship, up whose side I saw him safely hauled. This little steamer, the *Southern Cross*, sails but once a month to Auckland, and it is the only connection between Fiji and New Zealand, so that it would have been annoying for him to have missed her.

Feeling rather sad at being thus deprived of my last shipmate, I thought "Art is the great consoler," so I determined to go to the Waipo Falls, and there insult nature as well as I could by endeavouring to reproduce the scene on my block. I intended doing a very charming and finished sketch, but after I had

arrived there, and comfortably settled myself to my work, a whole party of natives came down from the higher hills and settled themselves to watch and interrupt, with that glorious disregard for the value of time that they one and all possess. They were completely naked except for the tiny *maro* that passes between the legs and round the loins. Unlike the Samoans they are not tattooed at all, but have instead, by way of decoration, enormous holes in their ears, in which great chunks of wood are inserted; these places often serve as safe receptacles for the stowing away of any small portable property they may possess. These fellows came and sat down near me, and were greatly interested in my work and property, especially with one of those metal drinking cups that collapse into three or four pieces upon being pressed. I signed to one of the men to fill the cup at the stream, which he did, and, placing it suddenly on the rock by the side of me, caused it to fall to pieces and let all the water out. How all the others laughed at him! They sadly interrupted my work, however, as I in an unguarded moment showed them the portraits of some Tongans that I had in the pocket of my block, when they were one and all seized with such a desire to be also immortalised that I had to leave off my waterfall and draw them. They have certainly not nearly such handsome faces as the Samoans and Tongans, and are not so large, but their figures are very fine and muscular. They were all charmed with their likenesses, which does not say much for their knowledge of the art of portraiture.

tomes tumbling into a very deep basin,
into another pool below; on one
rises to a great height an

almost perpendicular wall of rock. Up this two little naked boys of about eight and ten climbed, and, leaping off a ledge, came flying through the air, feet foremost, and plunged into the pool. They must have sunk to a great depth, as they were beneath the surface a long time; very plucky little lads they must be, for they seemed to think nothing of the leap, and did it several times for the fun of the thing. Several of the men were in the pool too, swimming like fish, and I, seeing that it was hopeless to try to get on with my work, undressed also and dived in—not from the great height be it understood, but from the level ground, doing it, however, with a nonchalant air, as though these childish pranks were beneath me.

I have to-day been making all my small preparations for my expedition to Colo (Tholo),—nothing very great, for I am not going *en prince*, and mean to take hardly any luggage. They tell me I must take a Fijian with me to act as guide and interpreter, as, after I land in the part of Viti Levu I am going to, I shall find no English-speaking native, and even the Fijian that they use in the interior is different from that of the coast. So I have this evening been hunting up an amiable half-caste, who says he can guide me all through the great island. I do not believe him, but as he can talk English as well as Fijian he will do. He is to meet me to-morrow morning, a little before sunrise, at the verandah of the hotel, and we are to start to Nadi (Nandi) in the cutter, the *Alarm*, directly after. Just at present the worthy fellow is very drunk, but they say he will be all right in the morning, and as there will be nothing for him to get drunk on when he is with me, he will perforce be sober.

I have to be up early in the morning for my departure, so "Good-night."

I arose before the sun to-day and finished packing the very little luggage I am taking with me. Besides the cotton trousers and thin flannel shirt that I have on, I am taking another old pair of trousers, a cotton shirt, some pocket handkerchiefs, socks, a little merino scarf, and a comb and toothbrush; that is all, besides some scissors and little things of that sort to give away, and a small flask of whiskey in case of need. These I have rolled up in an old blue colonial blanket and strapped together, making a bundle easily carried in one hand. The skipper of the *Alarm* was sleeping in the next room, and we descended together. I looked up the beach, and down the beach, and, lo! my perjured half-caste was nowhere to be seen. I was not going to wait and lose my only chance of getting to Nadi, for I am sure the skipper did not mean to lose this tide, so off I started guideless and alone. We were pulled off to the cutter (I will not descend to technicalities and describe the differences between cutters and ketches and schooners, and to confess the whole truth I do not think I could make all points absolutely clear), which was a very small craft indeed, by the side of which even the *Caledonia* would have looked large, and, weighing our anchor, were off soon after six. The crew consists of New Hebrides and Soloman Island boys, one or two of whom are wild-looking dogs, with ears gashed and noses pierced; they have only been imported a few days, and this is the first time they have been employed by whites. The mildest looking and gentlest is, upon his own confession, a man-eater. He has told the skipper to-day that all his people eat their enemies, and he innocently

enough does not seem ashamed to confess to having done as all his kinsfolk do.

The skipper is a very good fellow—once a planter here. He holds rather queer opinions concerning these "boys." He said to me to-day, "Oh, damn the Fijians I say, for a nasty idle lot; but these fellers" (imported labour boys) "I do like; I like 'em as much as hosses a'most—I do *in*deed." I found them pleasant enough, and in the course of the day have taught the cannibal one, who is of a distinctly Jewish type, with fine hook nose and large nostrils (this information I "throw out" for the benefit of any one interested in the Lost Tribes Question), how to cook a potato. I had never boiled one before, but thought I could do it better than he, as he has a way of sending them to table, or rather to skylight—for it is on that that we have all our meals, as below there is only room for one at a time—all waxy-looking outside and watery within. So I took them in hand next time. We have boiled potatoes at every meal. By leaving the lid partly off the pot when they were drained, and by shaking them in the most approved manner, I obtained a deliciously-cooked potato, which we much appreciated. Israel's lost representative cannot think why I want the lid off the pot, and comes and pops it on directly my back is turned from the box, with a fire in it, that on the *Alarm* represents the galley; but he has taken to the shaking part of the business to such perfection that to-night the potatoes have come to us in fragments, and the handle is already off one pot, and the other, our sole remaining joy, is uncommonly shaky.

We left Ovalau behind us this morning soon after starting, as we had a fair breeze, and crossed over, inside the reef all the time, to the side of Viti Levu,

which looks, as it is, a very large island. It is certainly very beautiful—there are such magnificent ranges of mountains in the interior; and we sailed along so near the shore that we could see everything on it, and I am a little surprised to find that houses and villages are so scarce. At sunset we selected a nice quiet little harbour, and there we let drop our anchor for the night, a pleasant, unhurried way of proceeding; and I, with several of the boys, went ashore in the boat, they to chop firewood and I to inspect the place. We had to wade some distance to the beach, as the boat stranded on the coral, and I find that of all uncomfortable materials to walk on barefoot coral is the very worst. But I was rewarded by finding all sorts of glorious things in the water; such queer creatures I never saw; it would have been a perfect heaven for a naturalist. There are bright blue starfish, and bunches of strange zoophitic things waving their long brilliant tentacles on slender stems; all sorts of corals and madrepores, sea slugs and *béche-de-mer*, and I know not what else. We chopped a good load of wood for the galley and returned, but night had fallen before we reached the cutter, and I had in consequence to chase my food about the skylight top in the dark, as we have no light on deck. I am scrawling this in the little cabin into which I have managed to insinuate myself, and am now just off to the deck with a Fijian mat on which I am going to sleep. It is a lovely night, and we shall have a little talk and a smoke before we go to sleep, I doubt not.

This morning we weighed anchor before sunrise, that we might avail ourselves of the land breeze that blows freshly here just after dawn. In front of us and behind us the sea was as smooth as glass, but just

where we were a good wind blows from the hills, so for a little time we bowled gaily along. The early morning was quite chilly, but soon after the sun has risen well above the horizon one begins to feel his power, and by nine o'clock it was scorchingly hot, and nowhere can one possibly obtain any shade, for the shadow of the sails at first falls on the water, and then, later on, as the sun gets more and more vertical, they give none at all. All that one can do is to sit beneath a huge hat and slowly bake. It is surprising how these native fellows enjoy it; their naked bodies seem never to feel too hot, and their heads are quite unprotected by any other covering than that which nature gives. There is a young Fijian on board named Na Koli, "the dog," from whom I am learning as many Fijian words as I can cram my memory with; unfortunately he knows no word of English, which makes it more difficult.

Up till now the hills of Viti Levu have been partly covered with trees, but the bush is gradually disappearing, and now they only grow in the little valleys and gullies, where moisture lingers longest. Beyond the Nananuyata Islands, which we passed this morning, for nine months in the year no rain falls, only heavy dews, which accounts for this absence of wood.

Towards mid-day it became almost a dead calm, and we lay on the water like a log; it *was* hot then. The islands we could see seemed floating in the air, for the sea and sky were exactly one colour; and no horizon line to mark where ocean ended and heaven began, could be distinguished. A current slowly drifted us amongst these islands, and at one place we seemed to be steering straight into the shore. I could

see no possible outlet until we passed a point of land, when I saw the narrow Nananuyata Passage, through which the current swept us, although all breeze was dead. There are many turtle about here—I saw them in the clear water; and the skipper tells me—Oh ye Aldermen, gnash your teeth!—that often they have so much of it that they get to hate its very name. We passed many odd little towns on the shore as we sailed slowly up the coast; the houses seem formed of enormously thick thatch, and look shady and comfortable. We sailed on until after dark to-night, as a good breeze sprang up towards evening, and we anchored, at about seven, just off the mouth of the Baa River, down which comes a gloriously cool current of air.

I have been having a great deal of very interesting talk with the skipper to-day of Fiji and Fijians. From what he tells me the knowledge they have of herbs and simples must be very excellent and extensive. They have cured him of an attack of dysentery when the best European advice he could get here, from men-of-war and other ships, had utterly failed. The old women take you in hand and bring you decoctions and infusions of leaves, which they make you drink whilst they stand by, to see that you save none of the leaves and so learn their carefully-hidden secret. If they send you medicines, the leaves they consist of are always chewed or pounded out of shape. Their knowledge of poisons is great, and was extensively used by chiefs for political purposes, they removing by this means any dreaded rival or dangerous foe. They would send their emissary to the doomed person's village, and he, with the craft that so distinguishes Fijians, and upon the possession of which they so pride themselves, would ingratiate himself with the individual

whom he was to poison, although it might take months to do, and then, seizing his opportunity, would in some way administer the baleful draught. The operation of their poisons is often slow, and the results of taking them so like that of disease as frequently to raise no suspicion in the minds of the friends of the deceased. Frequently, too, the chiefs would wish to gain for their children the curious rights of *vasu*, "nephew," over distant districts, by marrying daughters of those districts' chiefs; but those children never were born if the alliance was thought to be harmful to the tribes from which the women were chosen, the women being taught the value of certain leaves, and instructed to take them should they be about to become mothers. This, strangely enough, was almost always done.

The skipper was also telling me how little value they set upon their women. Except in youth, as slaves to their desire, and when older as slaves of burden, they consider them of little worth. Not many years ago, he says that a young women could be, and very frequently was, bought for a musket, and that often in dealings with the natives they would at last throw one into the bargain as a make-weight.

In old times polygamy was the custom in these isles, and it is the most difficult thing that the missionaries have had to strive against in those parts of Fiji that they have settled in. It was considered lawful for a man to have just as many wives as he could afford to keep; betrothals were frequently arranged when the parties were quite children, one man being betrothed to many girls to extend his power and connections. It was a dire insult for a man to refuse to complete the contract when he had arrived at a marriageable age, but this was rarely done, as it

did not much matter to a man if he did not care for one of his several wives. Their position was little better than that of an animal; and such was the absolute right of a man over his wife that he could kill and eat her, if he so wished, which has been not rarely done.

Such things were of frequent occurrence when the first English missionaries settled here, and I must say a good word for those early Christian workers who certainly did do a great work in a land given over to such horrors as no one who has not been here and heard the stories of eye-witnesses would believe. They fought against and conquered the deepest seated habits and customs of a savage people, and although their teachings were perhaps not all that one could have wished for in breadth and freedom, still to have made the greater part of a large and brutal population peaceful and civilised is no small thing. The story of how the wives of two of the missionaries, when their husbands were absent, bearing their very lives in their hands, forced an entrance to the house of an unfriendly chief, and, at the utmost risk of their own, saved the lives of several out of fourteen woman who were being slaughtered for the oven, makes one's heart beat quicker for the hearing, even now, years after.

Many people have totally denied the fact of cannibalism having ever existed; they should stay here for a short time in Fiji and hear some of the stories of the early settlers, and their opinion would soon alter. It appears that the Fijian loved human flesh for its own sake, and did not merely eat a slain enemy out of revenge, as some people have thought; although I think that very probably the absence of any animal that they could eat gave rise to the custom. The crew of every

canoe or boat that was wrecked upon their shores was killed and eaten in some parts until the very last few years; and often a great man would order to be clubbed some man or woman that he considered would be good for cooking, his plea being that his "black tooth ached," and only human flesh could cure it. Such inordinate gluttons were some of these chiefs that they would reserve the whole *bakolo*, as a human body to be eaten was called, for their own eating, having the flesh slightly cooked time after time, to keep it from going putrid. As a rule a Fijian will touch nothing that has become tainted, but sooner than lose any part of a human roast they would eat it when the flesh would hardly hang together. So great was their craving for this "strange flesh," that when a man had been killed in one of their many broils and quarrels, and his relations had buried his body, the Fijians frequently have enacted the part of ghouls, and, digging the body up from the grave, have cooked it and feasted thereon. So customary was this, that the relations of a buried man who had not died from natural causes watched his grave until the body had probably become too loathsome for even a Fijian appetite.

The expression "long pig" is not a joke, nor a phrase invented by Europeans, but one frequently used by the Fijians, who looked upon a corpse as ordinary butcher's meat, and call a human body *puaka balava*, "long pig," in contradistinction to *puaka dina*, or "real pig." The flesh was never eaten raw, but was either baked whole in the ovens, or cut up and stewed in the large earthen pots that they use for cooking. Certain herbs were nearly always cooked with the flesh, either to prevent indigestion, or as a sort of savoury stuffing—I know not which. If a man was to be cooked

whole, they would paint and decorate his face as though he were alive, and one of the chief persons of the place would stand by the corpse, which was placed in a sitting position, and talk in a mocking strain to it for some time, when it would be handed over to the cooks, who prepared it and placed it in the oven, filling the inside of the body with hot stones, so that he would be well cooked all through.

After a battle the victors would cook and eat many of the slain at once, but generally some of the bodies were borne home to the victors' town, where they were dragged by ropes tied to the necks through the square to the *bure*, or temple, where they were offered to the gods, and afterwards cooked and divided amongst the men, the priest always coming in for a large share. By the side of some of these old *bures* great heaps of human bones lay whitening in the sun as a sign of how many bodies had been offered to its god. The corpses of enemies were always treated with every indignity that a savage and degraded nation could invent and were not ashamed to use, and the wild orgies that generally took place upon the return of a band of warriors are absolutely indescribable. Every restraint was laid aside, and the indulgence of the most degraded passions was permitted without restraint. Sometimes even the victim was not killed, but was placed bound and alive in the oven; and their fiendish revenge, not being satisfied by the mere death of its object, tortures too horrible to describe were often inflicted,—frequently a living man having to eat part of his own body before death was allowed to end his sufferings. None that [illegible]ural death were ever eaten, and, unless the [illegible] slain was very great, the common people [illegible]he *bakolo*; they were allowed to pick

the bones and eat the inferior parts, such as the hands and head; but if there were many bodies for the oven all shared alike. Women were not allowed to partake of the awful banquet, yet women were considered better for cooking than men, and the thighs and arms the best portions. So delicious was human flesh considered, that the highest praise that they could give to other food was to say, "It is as good as *bakolo*."

Some of the most famous of the great cannibals have eaten an enormous number of human beings, many of them in their time having consumed hundreds of bodies. Some of them used to keep a rough record of each *bakolo* that they devoured. The number of lives thus sacrificed is almost incredible. No important business could be commenced without slaying one or two human beings as a fitting inauguration. Was a canoe to be built, then a man must be slain for the laying of its keel; and, if possible, were the builder a *very* great chief, a fresh man for every new timber that was added. More were to be used at its launching, as rollers to aid its passage to the sea, and others were slain to wash its deck in blood and to furnish the feast of human flesh considered so desirable upon such occasions; and after it was afloat, still more victims were required at the first taking down of the mast.

At Bau, the residence of Cakobau, there used to be a regular display of slaughter, in a sort of arena, round which were raised stone seats for the onlookers. In this space was placed a large braining stone, which was used thus: Two strong natives seized the victim, each taking hold of an arm and leg, and lifting him from the ground they ran with him head foremost—at their utmost speed, against the stone—dashing out his brains, which was fine sport for the spectators; almost as

cruel, was it not, as the gladiatorial shows of civilised Rome?

This reckless destruction of their fellow-creatures was woven in with their daily life and customs. Is it to be marvelled at that a race which was always witnessing and participating in these horrors should be ruthless and without mercy? This subject of cannibalism has a terrible sort of fascination for me, and I have been making the skipper to-night tell me all the awful things he has seen or heard of the "old" Fijians in the many years he has been here; and although he has made me shudder with some of his ghastly tales, told in a straightforward simple manner that is very convincing, yet—queer is it not?—I have enjoyed them thoroughly. I forgot to say that when eating human flesh they always use a sort of wooden fork: I have not seen one yet, and must say I do not particularly hope to do so in the wild part to which I am going. I have no wish to appear singular when I say that I should have gloried in the rush and struggle of old Fijian times—with my hand against everybody, and everybody against me—and the fierce madness of unchecked passion and rage with which they went to battle, and the clubbing of my foes, and I am sure I should have enjoyed the eating of them afterwards.

I have gone on scribbling far into the night, by the light of a solitary candle in the little cabin, which after sunset is not too hot for comfort; but now my eyes are weary, and I am beginning to feel rather eerie—awake, alone in the sleeping ship—after detailing all these horrors; so, although I have not told half I should like to have done, I must go to bed, which is to say, go up the three steps on to the deck, and then lie down and go to sleep as I am.

Next morning—this morning—the stars were still shining when we left our anchorage. The land-breeze falls so soon after sunrise that we avail ourselves of even the earliest gray of the dawn. The skipper told me last night of some very strange fish that frequent this part of the coast, and early this morning I saw several of them. They are, as far as I could judge, somewhat salmon-shaped, and they jump out of the water straight into the air to a height of fifteen or twenty feet, not at all as a fish generally rises out of the water, but coming straight up and falling again in almost the same place. What the reason of this extraordinary proceeding is I know not, nor could the skipper tell me. I only saw them this early morning just off the Baa coast.

There is a little settlement of white people at the mouth of the Baa River, and there a few years ago the skipper of the *Alarm* landed two donkeys on the island, the first that had ever been there. Hundreds of natives came to see these wonderful animals—these hairy pigs on long legs—and were crowding close round the gentle quadrupeds, when suddenly one of them lifted up his voice and brayed aloud in the very ears of the astounded Fijians; this set the other one off, and in an instant nothing was to be seen of the terrified natives but the soles of their flying feet.

This morning I have very much astonished one of the Soloman Islanders—who, by-the-by, resembles one of my cousins to such a ridiculous extent that I can never look at him without laughing—by showing him some tricks with string, which I learned at the tender age of ten at my first school. Judging from the amaze of this gentle savage at the way knots come out of twine and severed ends are joined again, I think I should

make a very respectable "medicine man" in his native place; but I think I shall not go there to see, as I have no wish to satisfy the physical as well as the intellectual wants of the people. These fellows decorate themselves in a very different manner from the Samoan tattooing; instead of puncturing patterns and rubbing in a stain, they cut themselves, or each other, with a sharp piece of bamboo that cuts almost like a knife; this cutting produces a raised pattern on their chest, arms, and back—never on the face as far as I have seen them. It is strange that the scars are marked by lumps on their flesh, instead of by mere cicatrisations or hollows, as one would expect. Vaccination marks, whenever it is done, show as lumps and not as hollows; and I believe—that is to say, I am told—that small-pox raise little permanent lumps, instead of pitting them. All this is in the interest of science.

Towards night it came on to blow, and was rather rough, and I found, on descending to the cabin for a bit of string for a shoe lace, that all the lockers had burst themselves open, and our stores were strewn all over the floor; the only pot of pickles on board having, in a manner worthy of its soured and vinegary nature, dashed itself down from a giddy height of three feet six, was lying in fragments, and all its piquant contents were mingled with the dust. I struggled manfully, and held many imminently threatening jars from falling, till assistance came in the shape of the mild-eyed cannibal, who helped me to put all right. We anchored at night in Nadi Bay, and to-morrow morning I am to be landed here a few miles farther up the coast. It is a dreary and desolate prospect of a long level stretch of land, and there is a wild mass of mountains amongst which I am to go to find the

true savage. Nadi is the centre of the terrible Fijian hurricanes, and is also very often visited by great tidal waves that sweep far inland. This very cutter, the *Alarm*, about eighteen months ago was lying here, when a hurricane rose, which was followed by a huge tidal wave, upon which it was carried seven hundred yards inland. They had lost the mast during the storm, and all hands were safe on shore, so when the wave retired there was no sign of the *Alarm* to be seen; but finally, by following the track made by her dragging anchor, they found her, very little injured, lying on an even keel in the midst of scrub and bushes. It took them about six months to cut a road for her and to get her slipped off and launched. "Samoce,"—Sleep well.

many of the white residents; but it seems peaceful enough now. There is, however, a white man stationed here in charge of a force of friendly natives to quell any signs of a rising. After I had rested a little in the shade of Mr. Harris's cool and roomy house, where I was most hospitably invited to stay the day and night, I walked across with Na Koli to the house of Sergeant Allen, the white man in charge of the native force. Most fortunately Na Koli is bound for Natuatuacoko, the place inland where I am to report myself, and when he knew that I was going there he seized upon my small bundle and has carried it all day. We went to see if there were any despatches to be sent from Nadi to Natuatuacoko, which I offered to take. At about eleven, I suppose, for I have no watch with me, I was ready to start, and was accompanied a little way by the white men, who wished me "God speed," "good luck," and "a safe journey," in an earnest and rather alarming manner. They said at parting, "You will be safe if you are careful," and I began to feel rather like Livingstone, or Eyre, or Stanley.

After crossing the clear little Nadi River, which has a large volume of water for its size, I found that I was on a good stretch of land that undulates into little hills, till the great mountains are reached about ten miles away. There was at first a good path, which made walking easy. The country reminds me somewhat of the scenery about the English lakes; the colouring is much the same, and there is, besides the great heat, not a great deal to tell you that you are in the tropics. Nadi is so dry that there is none of the luxuriant foliage or growth that is usual in these islands; the country is bare of trees except for the pandanus,

and on the hillocks a sort of poor iron-wood scrub. When we had walked some little way we came to a fine-looking native town, surrounded with very large green trees, that looked strange enough in this treeless land. At the outskirts of the town there were a number of men and children engaged in catching fish with a net in a very muddy pool. All left their occupation to gaze at me. The town is very striking looking, much more so than the usual Fijian one, as the buildings are of quite a different character and much more imposing. They are large and square and very lofty; the roof, which is formed of thatch eighteen inches thick, and supported in the centre by one huge post, is at the top of a rude dome shape, but the curves sweep outwards and downwards to the low side posts, giving a very Chinese appearance to the building. The town looks clean and tidy, and all rubbish is swept away from before the houses. The largest building of the place—the chief's house—is built on a high mound, with a deep ditch or moat all round it, which is crossed by tree trunks levelled on one face, with notches left on the front surface to aid any one ascending. As we were late in leaving Nadi I did not stop here, much as I wanted to do, for I did not know how far I should have to go before night.

The beautiful clitoria grows everywhere here about the bushes, and in the little pools I passed there were many water-lilies, uncommonly like those we have at home. It became very hot as the day advanced, and a bathe in one of the two little rivers that we crossed, which flow from the mountains, was most delightful, Na Koli seeming to enjoy it as much as I. The farther we advanced the stiffer became the work, for we left the level plain and got amongst the mountains; one of them, a spur of which we crossed, was very high, and

terminated in a great mass of rock, in places perfectly perpendicular. I am not yet in good climbing form, but hope in a few days to be in better condition. The view from the summit was very grand, though not at all encouraging, for before me lay the mountains, range after range, as far as I could see. This part of Viti Levu may well be called "The Mountains," for it seems to me to be nothing else. I never saw any country so strangely broken up. One cannot, as in most lands, see any order in the "lay" of the hills. Take a sheet of stiff note-paper and crumple it roughly in the hands, and that will give an idea of this country's conformation. I found a little cave at the top, which is evidently used as a resting-place by benighted natives, as the floor was covered with dried fern; into this I flung myself out of the sun and rested, while Na Koli sliced up the pine-apple that Sergeant Allen had very kindly given me at Nadi. Never did I taste fruit half so delicious as that pine, just picked in the morning ripe from the plant: it was glorious. However, Na Koli intimated that we must push along, or we should not get to Wai-wai, our first resting-place, till dark, so my rest was but brief.

The natives that we began to meet up here looked very surprised at seeing a white man, and the women often frightened. As we approached them they all got out of the path and stood on one side till we had passed, as a sign of respect. The women here are shamefully used, having to carry all the burdens and do most of the work. We passed some, looking prematurely old, with very large loads, one of whom gave us some sugar-cane, which is refreshing when you are a little exhausted, being food and drink as well. We climbed our last hill in the late evening, reaching Wai-wai just before

sunset, and found it a good-sized town, surrounded with a bamboo fence as fortification. There are a good many houses here, and some large ones amongst them; and I, being new to this part of Fiji, did not quite know what to do, but I was presently led to the largest house of all, into which I immediately proceeded to enter.

The door of this house is very low, and is overhung by the thick thatch of the roof, and as there is no window whatever in the place, one may think that, coming in as I did from the outside glare, I could see absolutely nothing in the house. I did not know what was going to happen next, but I presently heard amidst the perfect silence of the place a little beating sound, and knowing that it was some one patting a mat for me to go and sit on, I walked towards that, and sat down by the side of a man already there. When my eyes had become accustomed to the darkness, I found that, instead of being in a room almost empty, as I had thought from the silence of it, I was surrounded by thirty odd savages, all perfectly quiet, and gazing full at me. This did not disconcert me much, as it used to, for I am becoming quite accustomed to being stared at. As I could not enter into explanations of what I wanted there, I sat calmly and placidly until they brought me a cigarette; Na Koli doing all the talking in voluble whispers to a man near the door, and doubtless giving them a slight sketch of my history and parentage.

The house is a very lofty and large one, and is beautifully finished, the walls all lined with reed-work, fastened together with sinnet, of which advantage is taken to decorate them with strange designs, a different one being woven on each panel. The floor is covered with a sort of dried grass, on which mats are spread for the chief people; and at one end there is a sort of

platform, or raised place, a foot higher than the level of the floor; this is made by laying a piece of timber across the house, and filling up the space with great masses of springy fern, on which again are spread many mats. This is for the chief to sleep upon. The roof is supported by a huge post of a reddish-coloured timber in the centre of the house, and by many short stout ones round the sides. To possess a centre-post larger than that of any one else is one of the ambitions of a Colo chief. The thick thatch is supported on very long bamboos that have become quite black and brightly polished with the smoke that rises constantly from the three or four wood fires that are always smouldering in these houses, more for the purpose of drying and lighting their tobacco than for warmth, although it becomes chilly at night, and the early mornings are quite cold. Being ignorant of these fireplaces, soon after I came in here I placed my large straw hat in what I thought was a convenient place, and was much surprised—for they are usually so polite a people—on seeing it snatched up at once and put away; but on looking round, they pointed and said "It is the fire," as indeed it was.

After I had been sitting some little time a woman appeared at the door and handed some dishes of food to the men for me, but did not come in herself. There was *dalo* and roast pig, all very well cooked, and served in little wooden bowls. I was glad to get this, for I was very hungry, having had nothing since the early morning. I find that I ought to have brought several things with me, but not having any one to advise me I started without anything in the way of provisions, and doubt not that I shall get on as just as well without them. They brought me no salt, but fortunately remembering the Fijian for it, and asking them, they

quickly brought in a great dark lump shaped like a Dutch cheese, from which I scraped what I wanted. Making this salt is a special branch of trade carried on by the women of some of the coast tribes, who evaporate the sea water and collect the residue, and barter it for the goods made by other tribes.

The reason that the woman who brought me my food would not herself come into the house and give it me, as has generally been the case in other islands, is, that in Colo it is *tabu* for a women to enter the men's house; the men and women live quite separate, the men having houses to themselves and the women living together in others. Even after marriage the man and wife do not inhabit the same dwelling. This custom was once general in Fiji, but has in most parts died out. Up here in wild Colo, however, things go on as in old times. Years ago, when some of the early explorers made inquiries on the coast as to the inhabitants of the interior, they were told that they were giants and wore no clothes. I have not as yet seen anything to make me believe that they are above the average size, although they are a fine race of men, but I can understand how the second part of the statement arose. Before I had my supper I took a little stroll in the town, and was really surprised at the costumes I saw. Many of the men had on the scantiest *maro*, and the women were habited in even a more astonishing manner. The *liku* that their dress solely consists of is made of a sort of fringe about four inches deep, which is tied at the side, where the ends do not quite meet, just round the hips, so that it has a most comical appearance of always slipping off. Indeed the first woman that I saw dressed in this manner darted so suddenly into a house in front of me that I quite thought it was because her *liku* was

coming off. The *liku* worn by the young women is always very scant, but as they grow older the depth of the fringe is somewhat increased. These Colo women are all tattooed, but the markings are hidden by the *liku;* some of them have markings, too, on the lips, as is the case with Maori women, but not so frequently as with the latter race. Although their dress is scanty they are strictly modest, as it would be considered a most shameful thing for a man to appear without a *maro* or a woman without her *liku.* To be seen absolutely naked was thought so shameful that in old times, as a last indignity, slain enemies were always exposed without the *maro* before they were cooked.

Fijians are a very inquisitive people, and I had to tell them to-night, as best I could, where I was going; but I utterly failed to make them understand, even by the most expressive pantomime, what I want here. They have again been trying to gain information from Na Koli, who does not know any more than they, and I know well he has been telling an enormous series of lies about it. This habit of lying is so engrained in a Fijian that he as often as not tells a falsehood when the truth would be just as good. None are offended if accused of it, and so habituated are they to this charming little custom that they tell their falsehoods with such an appearance of honesty and plain dealing that it is difficult to think that they are saying aught but the truth.

After I had been here an hour or so they commenced a *yaqona* (yangona) brew, accompanied as usual by a *meke,* a sort of sitting down dance, to the music of their own voices and the beating of a piece of wood with two sticks. The method of their *kava* making is something the same as that of the Samoans, only not

nearly so nice. The *tabu* prevents any woman from coming into the house, so instead of having young and pretty girls to chew the root, it is cut up and handed to the young men present, who set to work upon it with great resolution, aided perhaps by the thought that they will share in the result, an incentive that is unknown to the girls. The water for the *yaqona* was brought in large bamboos that must hold a great deal, as some of them are six feet long, and the divisions at the joints are pierced somehow so that the whole bamboo is filled. It is thus that they generally carry water, and there are several bamboos now in the corner of the house that I suppose are full.

These *yaqona mekes* are very strange. The men sit cross-legged on the floor, and go through a variety of movements with the arms, head, hands, and body, all moving together with an exactness and precision that are charming. The song is often the narration of some fable, or old story, but the words seem only a vehicle for the dance, and every poem has a different *meke*. The refrain, as in Samoa and Tonga, comes in at the end of every line, and a rude sort of rhyme is noticeable as well as the excellent rhythm. I tried to join in the *meke*, but could not follow their movements fast enough, and I was always just a little bit late with the hand-clapping that so frequently is introduced. Fijians are most wonderfully observant of your face, and can always tell with the greatest tact what behaviour will be pleasant or not; and these men seeing that I should not mind, and that I laughed at my own failures, joined in very merrily, and laughed heartily at my efforts. Some of them are very savage looking. There are several "devil men" present, as I can tell by their heads of unclipped hair, and I do not

feel absolutely comfortable amongst them, for, although I am told that one is perfectly safe in a man's house, all the same they are a treacherous lot, and I have many things that I know they must envy greatly. They are very much interested in seeing me write so quickly, and are now looking over at what I am doing with much amusement.

Just now I surprised them very much by taking from my pocket a piece of paper with something written on it in Fijian, and reading it aloud to them. I did not understand it at all, but they cannot know that, and it must seem a very wonderful thing that I can read and yet be able to say so little. How strange it must be to a savage people for black marks on paper to mean so much. [I find in reading, since my return, Mariner's delightful description of the Tongans, an amusing account of this very thing. He says:— "This mode of communicating sentiment was an inexplicable puzzle to Finow; he took the letter again and examined it, but it afforded him no information. He thought a little within himself, but his thought reflected no light upon the subject. At length he sent for Mr. Mariner, and desired him to write down something; the latter asked him what he would choose to have written; he replied, 'Put down me;' he accordingly wrote 'Feenow' (spelling it according to the strict English orthography). The chief then sent for another Englishman who had not been present, and commanding Mr. Mariner to turn his back, and look another way, he gave the man the paper, and desired him to tell what that was; he accordingly pronounced aloud the name of the king, upon which Finow snatched the paper from his hand, and, with astonishment, looked at it, turned it round, and examined it in all directions.

[illegible] "This is neither like myself [illegible] where are my eyes, where is my [illegible] How can you possibly [illegible] without stopping for any [illegible] he imperiously ordered Mr. [illegible] something else, and thus employed [illegible] hours in running down the names [illegible] persons, places, and things, and making the [illegible] read them. This afforded extraordinary diversion to Finow, and to all the men and women present, particularly as he now and then whispered a little love anecdote which was strictly written down and audibly read by the other, not a little to the confusion of one or other of the ladies present; but it was all taken in good humour, for curiosity and astonishment were the prevailing passions. How their names and circumstances could be communicated through so mysterious a channel was altogether past their comprehension."]

The *yaqona*, of which I have had a large *bilo*—that is to say, a coco-nut-cupful—has made me feel very comfortably sleepy, and yet I do not quite like to go to sleep, for next me is lying an ugly "devil man," with a huge head of yellow hair, which is causing him a great deal of trouble. These followers of the ancient religion do not cut their hair, but wear it in a gigantic frizzed-out mop, three or four feet in circumference. This man carries a long stick in his for the arranging of it, and for the purpose of allaying any irritation that the living occupants of the bush may set up. He is only pretending to be asleep, for I saw a bit of eye which was suddenly shut when I looked at him just now. I do not like this man for this reason: there are only a few of the usual Fijian

wooden pillows in this house, one of which was given to me, and this fellow intimated a short time ago that he wanted it, evidently that his elaborately-arranged hair may not be crushed by his head lying flat. Not wishing to offend this amiable gentleman I handed him the pillow, and he now has it under his neck. I do not much regret it, as I find them uncomfortable, but it does not speak well for this man that he would take it, for the Fijian law of hospitality is, "The best for the stranger," especially when they expect to get something out of that stranger. However, I *cannot* keep awake, and the light of the fire is going out, so Good-night.

The light of the sun as it rose this morning just opposite the entrance of the house aroused me early, and I arose and found that I had not been clubbed in the night, but was all right, though rather cold. The mornings are very misty here whilst it is still early. The sun soon drives all damp away, but before it has gained its power the day is quite cold. I drew aside the covering that closes the doorway at night-time—a sort of thick curtain of loose reeds hung on a line—and stepped out to see the mountains, all veiled with mist, which the sun was gilding bright before he melted it, and already found the town astir—that is to say, the women were out sweeping the ground before their houses with a rough sort of besom of twigs. They must feel it chilly, I should think, with so little on. Before I started out they gave me some breakfast, which consisted of a basket of *dalo*, large enough to feed an elephant, and a little dish of some black snake-like creature, which I found very good. Na Koli, sitting at a respectful distance, ate up an enormous amount of the *dalo*, of which I could only manage a single piece, not being accustomed to it.

My small amount of packing was soon done, and I was ready to start by seven o'clock, after having made a small present to the man whom, of all these, I considered to be my host. I could not tell whose hospitality I had been enjoying, so I trusted to the right man getting his due, which I doubt not he will.

Vegetation began to be much more luxuriant than it was in yesterday's march, and many of the hills were well wooded. As there was a very heavy dew last night, the rank growth through which I had to walk quickly wet me to the skin. I was marching gaily along, with bold and fearless step, a little in front of Na Koli, when I was nearly frightened out of my wits by an awful roar at my feet. I sprang back alarmed, only to see a huge old pig, with a dozen little ones, rush off into deeper cover. I laughed, but it did frighten me for a moment.

Frequently on our way through the bush the discordant cry of a parrot, flying across the track we followed, would call our attention to him, and we should see for a moment a vision of gorgeous colouring, a large bird with breast and back of crimson and wings of a rich and lustrous green, which would disappear amongst the trees. The silence of the Polynesian forest is very striking. There are no animals here, and the birds are not numerous nor noisy. It is often so still that the cracking of a dead twig one treads on, and the tramp of one's own muffled footsteps, are the only sounds that break the perfect silence. There has been much rain lately, and the paths through the bush have been very bad all day and made walking difficult; on the open hills it was much better. I noticed on the bare parts in the sand washed down by

the rain a good deal of bright metallic dust, some ore of iron perhaps. It has been to-day, just as the last part of yesterday's walk, one constant climb up hills only to descend again. Generally, when one higher than usual has been struggled up, it is only to see a river far below that must be crossed, and consequently the height gained with such difficulty has to be descended.

I was very much charmed in one place to meet a Fijian armed with a bow and arrows: it seemed to me that at last I had arrived in a wild land indeed. This was a fine-looking fellow, but very black, dressed in the narrow *maro* that they wear, his hair in a great bushy, light-coloured mop, and one of his ears with a hole in it large enough to put one's hand through. I asked Na Koli if he were out to kill birds; but he tells me that he is going to the river to shoot fish, and enters into a long account, probably of the method, which I do not at all understand.

In one place in the bush I found an anomalous sort of blackberry, which was just like our English one, except that the berry was bright red, and very seedy, small, and tasteless. It was strange to meet an old friend in so far away a part of the world. Shaddocks are plentiful, but are beautiful only to the eye, they have so intensely bitter a flavour, though the juice of the pink coloured pulp is refreshing when one can get nothing better. The skin is an inch and more thick, there being a coat of white pith between the pulp and the outside rind. They look very handsome growing on the dark-leaved tree. In many places the treeless hills are covered with patches of bamboo; they can always be distinguished from a distance by their lighter green. It is a lovely object, growing very tall

and in a mass together. The crossing of the multitudinous stems is confused, but every curve of their long canes is graceful. It is a plant that is used for very many purposes by the Fijians, and is a regular object of exchange to places where it does not grow.

A few years ago, when every district of Fiji was generally at war with its neighbour, the people were always too frightened to walk along the valleys or lower hills, fearing a descent of their enemies on them from the heights above; hence their paths, which are for all the world like sheep tracks on a mountain side, lie along the very highest ridges of the mountains, so that no one can have them at a disadvantage. We had walked and climbed for a good many hours when we passed through the town of Nasaucoko, which is inhabited by a very wild-looking people. The men here have their hair dressed differently from what I have seen before; they let it grow very long, and then twist and curl it into long thin matted sort of spills, that hang about their head just like pieces of old hempen rope. The colour being the same aids the resemblance. But no two are alike: the dressing of the hair varies with the taste of the owner, some of them choosing an elaborate and marvellous *coiffure*, that must take a prodigious amount of time, and care also after it has been done. Nor is it alone in the dressing of their hair that they excel; they dye it many colours with great success. Sometimes one sees several colours on one head, and the different parts very definitely marked. I saw this morning one man with a large stiff curled head of hair, the crown of which was a dark claret colour, whilst all the surrounding part was a yellowish brown. Some of the men in Nasaucoko had large round ornaments hanging from their necks like

breastplates, that were made of pearl shell and whale's-tooth ivory. Very many too had the circular boar's tusk that I described before; whilst nearly all wore a bracelet that fits the arm very tightly just above the elbow, below the biceps. These bracelets are made of trochus shell, which they grind down with very great labour, the bracelet being the part of the shell just round the mouth. I intended resting a little time in the town, as we had been marching steadily since the early morning, and intimated as much to Na Koli, and I understood him to say in reply, "a little farther on." Thinking he knew some one a short way out of the town I walked on; but the imbecile did not mean anything of the sort, as, when once we had left the place, as I might have guessed, there was not another house.

After another hour or two of good stiff walking, we descended to a strong clear river, the Siga-toka, which rises far away from here in Nadrau. Here we had a delightful swim, the water being so exquisitely clear and of so pleasant a temperature, and felt much refreshed, for I was by this time beginning to feel a little tired. Na Koli told me that there was another river close by which I should have to cross, so I walked over as I was, making him carry my clothes, which piece of idleness nearly cost me dear. It proved to be another branch of the Siga-toka, the river dividing and joining again below. Halfway across the stream my wretched boy dropped a very necessary article of my costume, and I saw it madly whirling away whilst he stalked calmly on. Na Koli was in front, but I yelled to him, and pointed to my garment bobbing over the ripples. He rushed to the bank, put down his bundles, and ran after my vanishing property, which he caught just as it was about to plunge into a rapid

in the rocks, from which I expect it would never have emerged. I am again surprised at the volume of water coming down this river, which is both rapid and strong.

When we were on the other side my boy made a change of costume whilst I was dressing—a thing which he can do much easier than I can; so I presumed, and rightly, that we were approaching Natuatuacoko. The path suddenly improved on this side the river, and lay between plantations of yam, *dalo*, sugar-cane, and bananas, for about a mile, and then I saw the town itself. Natuatuacoko is built at the top of a steep little hill rising abruptly from the level of the river, and consists wholly of native houses, which are closely built together, and surrounded with a fortification of a deep dry ditch and a tall bamboo palisade. The position is a good and commanding one, as it is quite detached from the chain of mountains round it on all sides. The entrance, through a double gateway, is guarded by a Fijian, who acts as sentry, and there are others posted round the inside of the fence. Na Koli pointed out to me the largest house in the place, a very beautiful native one, as that of Mr. Sidney Marriott, the officer in charge, and there I presented myself to his rather astonished notice. I found him, much to my pleasure and surprise, to be, instead of the old and venerable officer I expected, a man of my own age, who seemed very pleased to see me and gave me the heartiest welcome. Of course I came here with the intention of staying the night, but no more; now Mr. Marriott says that I must certainly stay here some days to see all the wonders of this part of Viti Levu.

We had brought an English mail with us from

Levuku, which I knew he must be longing to get at, so I said I would rest whilst he read his letters, and it was quite delightful to see the way he laughed and chuckled over their contents. I have had no letter for months and months, but I know that that is just the way I do over my own. One little knows how precious a letter can be until in some distant and inaccessible place where they can reach one but at long intervals.

I was very glad to rest on the mats till dinner-time, as I was tired after my long day. At dinner, as it is, I now discover for the first time, Sunday, I met the only other Englishman in the place, an orderly officer, and the chief native officer, both of whom live in houses some little way from this. Mr. Marriott has a good-looking young chief, about eighteen years old, staying with him as a sort of companion, and also for the purpose of teaching him English and giving him a little education. He is named Nadurotalo (meaning, I believe, "House post hewn in secret"), and seems to be a pleasant and very gentlemanly native. All the Fijian aristocracy are better looking than the common people; they are larger built, and have finer and more clearly cut features.

There are eighty-five hillmen in the town, kept here to suppress any signs of insurrection among the Colo people. I do not myself quite see the advisability of keeping this fortified place, but I suppose there is some reason for it. It seems to me that one could hardly expect these fellows to be loyal to us in case of a general rising. After dinner Mr. Marriott got up a *meke* in his house, and we have had a huge bowl of *yaqona*. The movements and music of this *meke* were quite different from those I saw last night

at Wai-wai, although the general effect was the same. There is an enormous number of mosquitoes up here, so I was glad enough to get beneath the curtain hung up for me; and here I am, finishing, although crushed with fatigue, these interesting remarks, like St. Paul, "with mine own hand."

It was very cold this morning when I awoke. The mist rises from the river below, and hangs over the valley until after seven. I quite enjoyed being in a good house with pleasant company again, and lay for some little time enjoying the possession of both. The noiseless Fijian who acts as Mr. Marriott's servant had placed a cup of tea close to my head, inside my curtain, without my hearing him at all, as it is a terrible breach of Fijian etiquette for any one to wake you, even though you ask to be called; or if the house were afire they would try to rouse you with little coughs, or clearing their throats, or sometimes by scratching with a finger the mat you sleep on, close by your ear, before they will touch you. Before breakfast, when Marriott had finished his morning drill, he and I ran down the hill to the river and had a glorious swim. The sun had gained its usual power by then, and I am now quite convinced that there is no spot on the earth where a bathe is so delightful as here. Just below Natuatuacoko the river has formed a deep pool in the sandstone rock, through which it slowly flows: twelve feet of water I should think, and as clear as crystal—straight into which you dive from a level rocky platform. There is too a splendid rapid just here that will carry you swiftly along in its current if you want a little excitement. The Fijians dive and swim very well, and there are generally some of them there. I think that the skin of the Fijian is not nearly so soft and smooth

as that of the Samoans and Tongans; of course it is very much darker, and the reason that it is not so fine must be that they do not rub a little oil into it as do their fairer neighbours.

I had intended going straight on into the heart of Colo to-day, but Marriott most kindly urges me to stay with him some time, and it is with the greatest pleasure that I accept his invitation. He is a very interesting companion, speaking Fijian and liking his people; he is consequently much liked by them. These mountain men are a curious race: their faces as a rule are not prepossessing, and yet they still further disfigure them by blackening them in the most varied and extraordinary manner. It is a strange fashion. Sometimes half the face is blackened, and a spot put on the other cheek; sometimes it is crossed in all directions with horizontal and perpendicular bars. One man looks most absurd with all his face blackened but his nose, and others——but the variety is infinite. From all this darkness their eyes and beautifully-white teeth shine out with great effect. They are great dandies, and touch up their moustaches and eyebrows with black in the openest manner, and they pay the utmost attention to the hair, which in some cases is dyed a dusky red and in others a rich purple; but the majority have it rope coloured, or yellow, of an old gold tint. The women may paint with red and other colours, but black is strictly *tabu* to them.

This system of *tabu*, that extends throughout all Polynesia, is still in great force in Viti Levu, where priestly influence is yet existent. It is a curious system of prohibition put upon different actions and things: "This thou mayest not do," "That thou must not touch." Imposed by the chiefs and priests, it is

implicitly obeyed by the lower classes although it is very frequently placed upon things that are almost necessaries of life. Any infringement of it is heavily punished—so heavily, that often for a native to break *tabu* means losing his life. One frequently sees the signs of *tabu* upon coco-palms and at *taro* plantations, so that by judicious management a man can have his crops protected in this way. There are various manners of removing *tabu*, all of which can only be done by a chief.

In the afternoon Marriott and I crossed the river some little way higher up, and visited the clean little town of Ta-wa-lika, which is built on level ground a short distance from the stream. The houses are of the usual Colo type, and are built at the sides of a large central square, down which are planted coco-palms, giving a great air of beauty to the place. It is strange to see so savage a people with some of the tastes of a refined civilisation. One naturally expects to find that they have a love of personal ornament, but it strikes one as curious that they should care to plant shrubs and flowers about their houses purely for the sake of decoration; yet such is the case. On many of the earth banks that their houses are often built upon there are bright-leaved coleus and crotons growing that give a mass of colour, which is very rich and pleasing. Ta-wa-lika is a populous place, and we saw a great many people about—the children playing just as ours do, with the one difference that they wear absolutely no clothes. The women have the same absurd thready girdle as those I saw in Wai-wai, and the men wear either a *maro* only, or a somewhat similar *liku*, which is, however, much deeper than the women's, and generally black. These *likus* of the men are made of a sort

of water-weed, and are very becoming and gentlemanly. They nearly all have the lobe of the ear immensely distended, in which is inserted a block of wood seven or eight inches in circumference. They do not merely cut a hole in the ear and gradually stretch it to the ultimate large size it attains, but they cut two slits in the lobe, and expand by degrees this little band of flesh by inserting larger and larger pieces of wood, or *masi*, till it is so thin that it looks as though it must break through, as it not unfrequently does.

The town lies at the foot of a great limestone crag, which, except just at the summit, is covered with a dense wild growth; in this crag there is a series of great caves, which the Colo men have always, from time immemorial, used as a rock fortress in time of war. We took a party of boys from the town to act as guides to the caves, and to carry lights when we were there; they seemed to enjoy the expedition, and collected the great bundles of reeds and pieces of dry bamboo that were to be used as torches in a very few minutes. The ascent to the entrance of the caves is very steep, but we scrambled up to it, and found that the opening of the first cave had been built up with stones to serve as a protection from the enemy in the war with the English four years or so ago. We climbed over these and found ourselves in a large dry airy cave, with the floor still littered with the fern and dried grass that the warriors and their companions lay on when they had shut themselves up here.

In very few places in the Pacific where I have been has the art of the people ever ascended from the designing of the geometric and formal patterns that they so frequently use to the strictly pictorial. Very true it is that these geometric and linear designs are excellent

in themselves, and often beautiful, but they can hardly be considered as high in the scale of art as representations of living men or things. Birds very frequently appear—much conventionalised it must be said—in the ornamental work of the Soloman Islands, and rude figures in the carvings of other Western Polynesia; but in Fiji I have never seen such work until to-day in the cave at Ta-wa-lika. There the limestone walls have been decorated by the inhabitants, in a rather original manner, with representations of canoes and men, and other objects, the nature of which we could not make out. They have chipped the design with a stone in a series of dots on to the side of the cave, and have then filled in the little cavities thus made with a light-coloured sort of clay, which shows the design well on the darker tone of the rock. These rude drawings evidently give the natives pleasure, as one or more of the boys pointed them out to us with great pride.

This cave is not a very extensive one, although it penetrates some way into the mountain; it branches into two parts, one of which, a narrow and low tunnel, leads into the adjoining cave. The large torches of reeds and bamboos that the boys held made this low part of the cave very hot, and we were glad to leave it and walk a little distance in the open air till we came to the second cavern, from which was flowing a stream of cold clear water, showing the agent that had made these great excavations. This cavern, or series of caverns, is much larger than the first we were in, and extends far into the depths of the mountain, where it branches off into many passages. When we had entered well into the darkness we heard a strange sound above us, caused by the hundreds of huge bats we disturbed; and by the fitful and smoky light of our torches we

could see their dim shapes fluttering dismayed about the roof. The floor is all formed, to a great depth, of guano, which may some day be a valuable possession. The cave is not level throughout, and we had to ascend quite steep acclivities at times. Our guides, looking like demons in the firelight, flitted on with the torches easily and actively enough over the slippery surface of the floor; whilst we, in our shoes, found it difficult to keep our feet. We ascended one such place after some trouble—for it was damp, and therefore more greasy than usual—at the top of which the boys pointed out to us a hole in the rock, before which lay a large heap of stones; through this opening a strong draught of cold air rushed with a weird low sound in an unearthly manner.

Whilst our torches were flickering in the cold gust, the oldest guide told Marriott—the rest listening silently in an awesome manner—that the devil used aforetimes to come up this passage and work his evil will in the district; but that the *bete*, the priest of the old worship, enticed him back again, and blocked him down with the very stones there lying now; thus keeping him from visiting Colo. Of course the possession of such a devil was a magnificent thing for the *bete*, as it would be for any priest, who used to threaten to let him loose upon the country if everything he wanted was not provided, and in abundance too. Curious, is it not, that any people, however ignorant, could have believed in such a power?

Although the people just about Natuatuacoko, where some little English influence has been at work for a year or two, are nominally Christian, the old belief is not yet extinct. In cases of sickness and trouble the people will still send to their *bete* with

gifts and propitiations. In the part I shall be travelling through when I leave Natuatuacoko, the objection to the new religion is so strong that they eat any missionary foolish enough to go there. However evident the truth of Christianity may be, it does not seem likely that a populous country can be *converted* straight away. Undoubtedly the influence of fear, or interest, often makes a whole people accept a faith that is thrust upon them; but a generation must have passed away, and a new one sprung up and been educated, before the work can be thorough. I am just as sure, too, that cannibalism is not yet a thing of the past up here, as one is lead to believe it is in the greater part of Fiji; the taste for it still exists, and the taste is gratified, I doubt not, when occasion serves. Four years ago, and probably three, it was a regular and acknowledged thing in the mountains. A white man who had strayed into this part of the country was, a few years ago, killed and eaten in Nadurotalo's native town, and it is one of Marriott's jokes to assert that Nadurotalo was himself found gnawing away at the murdered man's boots, thinking that they were a part of him.

There is, our chief guide says, a second cavern over this, into which the devil-passage leads, which is equally extensive; but as there is nothing there more than in this one, we did not go into it, as we both were wishing to get a little fresh air. Now that I am back I am rather sorry I did not go, as one always is if one neglects to visit a place, for they say no white man has been up in it, and there *might* have been something interesting. In some parts of the cavern, where the water was slowly percolating through the roof, stalactites and stalagmites were forming, and

in others there were large and perfect flights of steps of the slowly-deposited carbonate of lime, over which the charged water slowly trickled, as it must have done for centuries. A beautiful cave it is, and it looked very weird in the light of the shifting torches, which illumined one moment what was shadow before, and were reflected the next in some of the many little pools of clear water, into one of which I suddenly plunged, and sat down, as I was poetically admiring the roof. It would have been a case of total immersion, but for one of the little naked lads with us, who was flitting along by my side, and heard the splash. After a long time, all our tall torches having burnt away, we emerged at last through an opening in the hillside, half filled with giant rocks and draped with creepers, through which the daylight poured, dim and green, into the cave. We found ourselves in a dense jungle of reeds and tangled plants, through which we had to force a pathway down the hill.

When we reached Ta-wa-lika again we rested for a little time in the house of *Na Buli*, as the head of a small district is called, and thanked him for the services of his people. Here I happened to sneeze, when the old gentleman most politely said "*bula*," a thing that is always done upon a similar occasion. The fact is not particularly interesting in itself, but it becomes so when one thinks how strangely similar a custom is almost universal. In the Friendly Islands, when one sneezes, they say "*ofa*," "love," and I was told that the reason of it was this:—When a man sneezes it shows that he is thinking of his wife or sweetheart, and that when a woman does so, that she is thinking of her husband; so that they only think it kind to say "*ofa*" to one on those occasions. In Samoa I found a differ-

ent phrase in vogue at such times, and more interesting on account of its likeness in meaning to one in use in Europe. There they said "*soefua*" when one sneezes, the meaning of which is, as near as possible, "God bless you." In Fiji *bula* is the correct thing to say, which is, being interpreted, "Good health," very nearly the same in import as the Samoan *soefua*.

After recrossing to our side of the river we went into the garden that has been made at the foot of the hill our town is built on. Here we plucked as many bananas as we could eat, and they are so delicious when ripe from the plant that one can eat a good many. One part of the garden is filled with a collection of magnificent crotons, many of which are indigenous to Viti Levu, others have been brought as slips from many other parts of Polynesia, and they all grow here into great bushes of most glorious colours. There are dozens of varieties, with tints that vary through every tone of crimson and gold to green and primrose; I never saw such a glowing mass of colour. Then too there has been introduced the beautiful poinsettia, whose wonderful crowns of crimson seem to blaze in their intensity of colour. As I seem to have struck a botanical vein, I may as well write of a delightful sort of grass that grows in tussocks on the hills here, which has a most delicious perfume, when you crush it, of lemon-scented verbena—exactly the same. The natives make a hot drink of it, Marriott tells me, so I gathered some to try to-morrow.

One of the favourite games of the Colo men is *tiqa* (*tinka*), which is one of those difficult things that look so easy to do. The men playing form into two parties, one at each end of a very long path, beaten as level as possible; they are armed with a reed about three

feet long, weighted at one end with an oval piece of hard wood, and the game consists of throwing these darts along the ground to a great distance. That side wins which sends the greatest number of reeds past a certain mark at either end of the path. Not only is it a very athletic sport, requiring great strength to excel in it, but skill also is very necessary. The players rest the dart on the end of the forefinger, and balance it so for a moment before they throw it, when it skims along the ground at a great speed, and frequently to a distance of a hundred and forty yards. Marriott is very good at this sport. I tried it, but although I nearly dislocated my shoulder with my mighty exertions, my *tiqa* would not dart along as it ought to do, but struck the ground some few yards from me and fell dead. However, with a little practice I may yet improve.

CHAPTER XI.

FIJI—(*continued*).

ONE morning during my stay at Natuatuacoko, after our usual water party Marriott and I decided to go to Waivesaga, where are some wonderful hot springs; so we sent for the horses that have been brought up here from the coast, which are still regarded with a mingled curiosity and awe by the natives, and rode off. They are certainly wonderful animals, going up and down steps, or climbing a wall of rock, almost like dogs. We crossed the river and passed through Ta-wa-lika, the town near which are the caves, where the whole population turned out to see men riding horses. We of course galloped, and "showed off" a little, and caracolled like two of G. P. R. James's heroes as much as we could at a short notice.

There is a stiff hill just outside Ta-wa-lika that we had to climb, but after that we had a stretch of ground, wonderfully level for Colo, for some little time, when we reached Wala, a beautifully clean little town, all planted with cocos and fan-palms; with the leaves of the latter they make the huge fans the warriors use in war-time. The old town is surrounded with a ditch and a thick fence of orange trees, though which no naked body could pass; in the branches of these it was the custom to place the bones of killed and eaten enemies, and there they were left to whiten in the sun. To enter the town you must cross a narrow bridge, and

pass through a little opening that could very easily be defended by one or two men. From Wala we rode over the brown and barren hills for some miles till we came to a stream, of which one bank was so steep a rock that even Colo horses could not go up it. There is a most refreshing little waterfall just where we crossed over; and I noticed deep holes in the level shelf of rock, ground down by the grinding of a hard stone at the bottom when the stream was in spate; some of these holes were four or five feet deep, but only six or eight inches across the top. Part of the water of this stream is diverted from its original course, and runs in a little artificially-formed channel right round the side of a great hill, where it is used to irrigate large beds of *dalo*, one levelled terrace below the other, all down the valley, the water flowing over each one in turn. This is managed really cleverly, and shows a good deal of ingenuity in the management of dams and sluices. The *dalo* root is the main staple, or one of the main staples, of Fijian food; hence these huge beds of it.

After a very hot walk of a mile or two we came upon some of the men from Natuatuacoko, who were busily engaged in cutting down some tall coco-palms for building purposes. They roughly shape the logs to the required form on the spot, and then, dragging them to the river, which flows near by, they float on them down the current to the fort. All these men had their faces blacked, and so effectual is it in disguising them that I could not distinguish one of them, though by this time I know the faces of most. I suppose it was originally adopted to prevent personal grudges after a war between neighbouring tribes. They all had large turbans on of light and gauzy *masi*, coloured brown by being smoked:

these they wear not as a protection to their heads, but to keep their wonderfully dressed hair from being disarranged. After we left them I had a long swim in the river to get across a deep place, my clothes being carried by a boy who followed us, who climbed along the wall of rock with Marriott till they came to a shallower part of the river. When I had swum this reach of the river and landed on a shingly beach, I saw a Fijian and a boy tending a fire at which they were cooking something; and whilst I was waiting for Marriott and my clothes—for they took three or four times as long to come by land as I had by water—I joined these two at the fire. They nearly tumbled into it with surprise at seeing a naked Englishman suddenly behind them, without any warning; but they offered me some of their food, a little of which I took and enjoyed. When the others had joined me and I had jumped into my two garments, we walked a mile or two farther up the side of the river amongst the dense and beautiful growth that covers both its banks, along a shady path raised some height above the stream. On one of the trees I found some of the small shaddocks that are used in Samoa as a sort of soap, and told Marriott of their use. As he had never heard of them before, nothing would satisfy him but that we should use them there and then, so when we had found a good place we bathed again on purpose to try them. They make the hair very soft, silky, and pleasant.

Just where we bathed a stream of hot water flowed into the river, which rather astonished me when I first swam into the warm current, till I remembered the hot springs. We were quite close to the town of Waivesaga, and reached it a few moments after we were dressed. It is a smaller place than the towns

near Natuatuacoko, and not nearly so well built and neat, nor were the people so well dressed and pleasant. We asked a man to lead us to the hot springs, which were the object of our expedition, and he, with a very lightly attired young woman and a boy, took us through the town to the stream that ran by it, up which we had to walk for some little distance before we found the first of them. It was a small spring, but the water was very hot: I could just bear my hand in it for an instant. The water has very little taste, but on the stones over which it flowed a white incrustation has been formed of a slightly saline nature, which I think may be magnesia. The girl who accompanied us called our attention to this fact, for the incrustation is but slight, by picking up one of these stones, licking it, and handing it to us to do the same. We thanked her, but—people are so fastidious—found others. It was funny to see this strangely-dressed woman solemnly putting out her tongue to taste the stone and then passing it to us. The man tells us that in the morning great clouds of steam hang over the springs, which vanish as the day grows older; this is easily understood if one remembers how cold, comparatively, the mornings are.

The second spring is about 150 or 200 yards away, and is of quite a different character. Instead of rising gently on level ground it rushes from a rock about ten feet above the stream into which it flows. It is much larger too than the first, and has a slight smell and taste of sulphuretted hydrogen, I think; its temperature is much the same, as far as I can judge with such a rough thermometer as the hand. Vegetation grows rank and luxuriant over the spring and quite close to its scalding waters.

There is a third spring on the other side of the stream, whose waters are quite tasteless and cooler, but as I did not see the actual source of it I can hardly speak of its true temperature. In Vanna Levu, the other great island of Fiji, there are much larger springs than these, whose waters rise at boiling point, and in which the natives cook their food by sinking it in baskets into the boiling water.

After examining the springs we returned to the town, and rested for a little time in the house of the chief man, and had some coco-nuts to drink from whilst we talked to the chief. This house was of the usual shape and construction, but was decorated in a very queer manner with innumerable bones stuck all about the thatch of the roof inside. There were many eel-skulls and such trophies, and I doubt not that there were some human ones among them, but it would not have done to have examined them to see. When we left this house and were walking through the place, we saw a row of very beautifully-shaped jars placed before one of the houses to dry in the sun. They were egg-shaped, and would hold five or six gallons, and, considering the method of manufacture, they were of singularly good shape; so true indeed is their outline that I thought a wheel must have been used in their moulding. They were placed in deep rings of plaited grass, as, being footless, they could not stand erect alone. When they are used for boiling *dalo*, or other food, they are placed sideways on the fire.

I was much interested in these specimens of pottery, and waited to see the making of some of them; but we could see none going on, and should have had to go away unenlightened had not two women come out of a house close by and told us that they had some food

prepared for us inside. On entering the dim house I saw that they were the potters, for moist clay and jars in all states of manufacture were about; and in the ashes of the fire were similar jars, blackened by use, from which they took the *dalo* to give us. The house was very hot, for at one end of it there was a rude sort of kiln, in which jars, similar to those we had seen outside, were baking.

The potter is always a woman, such work being far beneath the attention of the men. Taking a round stone in one hand, she forms the bottom of the jar by pressing it into a lump of moist clay, which she gradually moulds to the shape of the stone with a smooth piece of wood, and, adding clay to the edge of the growing jar, she continues to mould it in the same way with the stone inside, and smoothing with the wood upon the outside. The mouths of these cooking jars are always large, so that the shoulders can be added and worked in the same way before the hand and stone are withdrawn from the interior. All the jars that were left incomplete had folds of wet *masi* laid over them to keep the edges moist. Whilst the jar is still damp the artist decorates her work with lines and dots incised on the surface of the clay, and this decoration is, I think, the most interesting part of the work. Too wise to waste much ornament on mere cooking utensils, she simply decorates them with a few lines or dots only; but upon other pieces, such as water jars and the other quaint vessels that they make, she lavishes great fancy in varying the design, and skill in application of it. No two pieces that I saw were decorated the same. There is a constant variety, although, as far as I have seen, the designs for their pottery decoration, like those for other work, are always

linear and geometric, and never pictorial. When the pottery is finished it is thoroughly dried in the sunshine, next a rapid fire of grass and dried leaves further hardens them, and then a final baking is proceeded with in the kiln that was at the end of the house. Some of the pieces receive a sort of glaze when they are still hot from the last burning, by being rubbed all over with a gum that exudes from one of the trees in the bush.

When we left Waivesaga, and, crossing the river again, had walked the mile or two to where our men had been felling the palms, we found some of them had stopped to give me a piece of the heart. This is the very centre of the crown from whence the young leaves shoot, and it tastes like the most delicious nut, —crisp, short, and sweet; it is a thing that one cannot often indulge in, as to get it destroys the palm.

We were both rather tired when we arrived at the stream where we had left our horses, and were glad enough to mount them. Some thoughtful man in passing the place had gathered and given them a bundle of green fodder, which they were eating when we returned. There was a whole crowd of people gathered to look at us as we passed through Wala on our way home, the women all by their own houses, and men standing together. However becoming the narrow *liku* may be to young and beautiful figures, it is really a rather terrible sight to see the old women dressed only in it, though it is made deeper for them than for the younger ones. Crossing the river again by Ta-wali-ka we returned home, and finding Nadurotalo, went together for a final swim. He has a gathered toe, which has been bad for some days, which I have undertaken to cure with native medicines; for

I had had pointed out to me in Ovalau a plant whose leaves are very good for such things. You take the *drau-ni-kuru* and heat the large glossy leaf till a sort of oil exudes, when you apply it to the place, and leave it on for some hours. It cured the gathering shortly.

One day when Marriott and I had come into the town from the *tiqa* ground, Nadurotalo, who had been down at the river, ran into the house in the most violent state of excitement to say that a *Papalagi*, with a great black beard, was down at the river, and they could not understand what it was that he wanted, as he spoke no Fijian. Of course we hurried down, and found that it was a foreign gentleman who had been travelling for some little time in Colo, in the interests of science, I think. He was very glad to see a white face again, and hailed us with delight, not unmingled with astonishment, for he did not at all know where he was. He has spent the day here, and we have found him a very interesting talker, for he has travelled into many known and unknown countries. He seemed tired, and was glad to rest whilst Marriott and I finished our game, and had after that our evening swim with Nadurotalo in the river. Both Marriott and I generally wear the native *sulu*, with the addition of a shirt, and it is one of the pleasant parts of the costume that it does not take long to dress and undress when we take our frequent baths.

I wandered off to-day into the banana plantation in search of a stock of fruit to regale the visitor, and lost myself in the bewildering sameness of the trees, but found myself again after some little time in quite a different part from where I thought I was.

Next day Marriott and I stayed about the town, as

the visitor remained with us until some time in the afternoon, when he started with two boys to carry his extensive baggage. As it was rather late in the day, and he had a long way to go to Wai-wai, where he intended staying the night, Marriott very kindly lent him a horse for the first part of his journey, and a boy to bring it back again. He is going straight to Levuka, where I shall probably see him in a month's time, when I hope to be there again, unless he has left it again for Australia. I suppose the terrors of the road have been too much for him to brave on horseback, for when we came back from the river in an hour's time we found the steed in the town, and the boy who had brought it back brought also a note, hastily scribbled on a cigarette paper, to say that as the day was so fine our friend thought that he would rather walk on to Wai-wai, which I fear he will not have reached until after dark.

[We little thought when laughing at his horsemanship that it was the last we should ever see of him, but next day we heard that the two boys who had undertaken to carry his baggage were back at Ta-wa-lika; Marriott sent for them, and learned that they had deserted him half way to his destination. The excuse they gave for so doing was that they had been frightened by his pointing his gun at them, which we did not for a moment believe. We could learn nothing more whilst I was in Colo; but when I had returned to Levuka, a month after, I made enquiries for him, and heard that he had called at Nadi, and then had entered the wild district again between it and Baa, meaning to get a boat and come on at once to the capital. Although he should have arrived in Ovalau weeks before I did, he had never come, and nothing more was known of him. I fear his bones are whitening somewhere in Colo. It is not a

pleasant reflection to think that a man who spent some time with one, pleasantly and happily enough, was in all probability shortly afterwards cooked and eaten; nor is it a pleasant thing to think that one ran the same chance oneself. Fortunately I knew nothing of this whilst I was in the mountains, only having heard rumours of the revival of cannibalism, which is said to have taken place in Fiji since the terrible outburst of measles some little time back, which the natives look upon as a punishment sent by their old gods for deserting them and their old customs.]

We had a *yaqona meke* to-night, which was much the same as the one I saw at Wai-wai, but it had some differences of song and posture. Before they drink a toast is proposed, by chanting in Fijian "May the earth be fruitful, *dalo* plentiful," or something of that sort; the chorus making the refrain by repeating the last line that the principal has sung. When the *yaqona* is ready they fill a *bilo*, made of a half coco-nut shell, which with age gains a beautiful sort of bluish glaze on the inside from the drink, and the cup-bearer—always a young man—kneels down, and, bowing his head, lifts high the cup, in a most graceful position, for the person to take who has been named by the chief man. You empty this at a draught, and then throw the cup on to the mat in front of you, making it spin round and round, while all the men clap their hands and cry "*Ah-h-maca*," "It is dry" or "empty." When you have finished your draught it is the correct thing to blow away any of the moisture that may be on your moustache, and to spit out any little fragment of the root that may be in your mouth, making rather a noise about it too, or else it does not count. I do not quite know why, but it is thought polite and right to do so.

There is one slight drawback to this place, but one that you soon get accustomed to—that is, the great number of centipedes. They live in the thick thatch of the roof, and very often you hear a queer sort of pat on the mats when you are sitting still at night-time in the house, and you know that a centipede has fallen. The natives catch them very adroitly with their hands, making a sudden dart at both head and tail simultaneously, and hold him straight out, frequently roasting him over a burning ember. Every night you see one of the boys sweeping the mats you are to sleep on, and most carefully tucking the ends of the mosquito curtains under it, so that none of these vermin may get upon your bed. Their bite is rarely, but occasionally, fatal, but always very painful.

Marriott has been telling me to-night some of the charming customs of old Fiji respecting the death and burial of the people, which are so interesting that I write them down. It seems that when those people who, by some strange chance escaped being killed by treachery or in open warfare, became, either from old age or disease, a trouble to their relatives, they were informed that it was time they were dead, and the mourning relations, with every appearance of grief, set about the preparations. If the burial of a chief were in question, a great grave was dug, its size varying according to the number of intended victims which were to be buried with him. It was not to be expected that a great man could go unattended to the next world, so his about-to-be-bereaved relatives took care to have plenty of "grass" to line his grave, and the last hours of these truly noble and unselfish old fellows were often comforted by knowing that the "grass" for their graves would be thick. This was not, as may be thought, a

vegetable product. The "grass" referred to was the bodies of men and women slain, and strewn at the bottom of the grave for the dying man to rest on. Often all the wives of a man were strangled before the breath was out of their lord; the chief wives always were killed, and generally by the hands of their own children. Sometimes, even when there was a chance of escape, they would insist upon it, as they knew what a miserable time they had before them if they lived, and a wife that was strangled in this world was to be the first wife in the world to come. Whilst these trifling details were being carried out, the chief performer in the play was being made ready for his part. The attendants blackened his face, dressed his hair, put his finest ornaments upon him, wrapped his longest and best piece of *masi* about him, and paid no attention whatever to anything he might have to say to the contrary; but objections were very rarely raised, as they were known to be useless. The strangled wives were dressed in their best, were oiled and covered with turmeric and vermilion, and then carried to the grave, where they were deposited with the slaughtered man. Then the chief was wrapped in mats, and, amidst a tumult of mourning survivors, was carried with all respect and placed upon the grass so awfully mown for him, and the earth was heaped on dead and dying alike. Mourning ceremonies were continued sometimes, in the case of the death of a great chief, for months, and whole groves of trees were made *tabu* for the service of the departed spirit, and dozens and dozens of fingers cut off, out of respect, and stuck all about the dead man's house.

Old people of the common class did not receive the alleviations of ceremony, but were either clubbed or strangled by their affectionate offspring, or in some

cases left to die of exposure. But not only in the case of aged people was this terrible thing done. Did a young man receive a hurt from which he was slow to recover, or did a girl fall sick and not soon become well, he or she was informed what was about to happen, and without delay or ceremony was murdered and buried. But almost more terrible was it when strong and healthy men were buried alive at the building of a great house—this was frequently done—that the men by clasping the huge posts, even in death, might keep them from falling.

[In reference to this, Jackson, an early traveller in Fiji, says that the natives told him, in answer to his enquiries, "that a house or palace of a king was just like a king's canoe: if the canoe was not hauled over men as rollers she would not be expected to float long; and in like manner the palace could not stand long if people were not to sit down and continually hold the posts up. But, I said, 'How could they hold the posts up after they were dead.' They said if they sacrificed their lives, endeavouring to hold the posts in their right position, to their superiors, 'turaga kai na kalow' (chiefs and gods), that the virtue of the sacrifice would instigate the gods to uphold the house after they were dead, and that they were honoured by being considered adequate to such a task."]

Nadurotalo, amongst other things that he is learning from Marriott, is acquiring a knowledge of geography, which he learns with great diligence, and gives you the right answer when you question him upon it; but, with characteristic Fijian scepticism, if you ask him quietly if he believes what he is told in the book, he shakes his head and says, "No, it is not true." That the world should be round and moving about the sun

instead of being flat and the sun moving about it, are two such palpable falsehoods that he doubts all the other statements in the book.

One morning I had been hearing him his lesson when a large party of his people came in from Noikoro, laden with all sorts of produce brought as presents to him. His mother and brother were amongst the number; but of them he for some time took no notice whatever—an air of indifference being correct, I suppose, before me. His mother is still a youngish woman, dressed in the usual Colo *liku;* she is tattooed about the lips, and has one huge earring thrust through her ear. The brother is a young boy, of whom he seemed very fond, when he thought he had acted carelessness long enough; the lad seemed rather shy before the *Papalagi.* Twelve or fourteen people came with them to carry the gifts, and then behind them were six magnificently dressed savages in full war paint, who are going to stay in the fort. They are all fine-looking athletic fellows, young but fully developed, and their dress shows them to great advantage; they all wear the black grassy *liku* round their hips, and tied round their breasts or waists are long sashes of *masi,* narrow in front, but which form huge bows and loops behind that trail along the ground. They all have their faces blackened in bars and stripes and spots, and their great heads of hair are wrapped in turbans of the very fine native cloth they make for this purpose. Some of these turbans are round, and others tall, like the hats of the grenadiers of the early Georges. Above the elbow they wear the usual white shell bracelets, and at the throat a great round boar's tusk hangs. Very fine they look and very terrible, as they stand before the house in the open space of the town, with their war clubs in their hands.

When Nadurotalo's people were leaving, he sent a number of messages by one of the men to his native town. As he gave each message he gave the bearer of it a little stick, so that when he left he had quite a small bundle of them. Each one of these represents in his mind the particular message given with it, and he will deliver both together at the other end.

We have only just returned to-night from fishing in canoes on the river; a whole party of men went with us to paddle, and carry the torches. We, however, managed to get nothing but many beautiful effects of torchlight on the rocks and on the deep black water below them. The natives said we should not catch anything, and I doubt not laughed to themselves immensely at the idea of fish being attracted to our spears. We told them that the *Viti* fish are fools, and that the *ike Papalagi* always come to a torch. I do not suppose they believe us for a moment.

This morning, Marriott being busy, Nadurotalo took me off for a swim. The heat is so great that the river is quite the best place to be at in the middle of the day. I only learned to-day that sharks come up these rivers from the sea, and are frequently the cause of accidents to bathers. Marriott says that when I get across to the Rewa I must on no account swim there, as it is so infested with them.

Feeling the disgrace of catching nothing last night we were on the river again this afternoon alone, armed with long native wooden spears, for the purpose of retrieving our characters; but again we failed to catch anything, the water is in many places so deep, and the fish were all at the bottom. We were giving up all hope of sport when I made a furious dart with my spear, and transfixed one monster of the deep about

three inches long, very much to our surprise. These spears are about ten feet long, the heads of which are split up into five slender barbed pieces, which pierce and hold the fish. The natives are very skilful in the use of these weapons, but they are rather awkward for a mere amateur. The bark in which we had been paddling about all the afternoon was so very leaky a one that we had to get out to save it from sinking, and whilst swimming Marriott was very scared by thinking that he felt a shark, and let his spear go, which instantly floated off into deep water. I, seeing that he had rubbed up against a smooth banana stem, as I did once before in Haapai, swam off with my usual bravery and rescued it. After we were home again Marriott asked if I should like a large dance of natives to-night, and got one up, which has been one of the most delightful things I have yet seen in the islands; and although I quite despair of succeeding, I suppose I must attempt to give some small idea of it all.

The evening was fine, with a bright and luminous sunset, and now the night is very dark but clear; all around the great black mass of the hills is silhouetted against the starlit sky. The day has been very hot, but now when night has fallen a light breeze is blowing, cool and fresh, which stirs the leaves of the trees round the fort, whose soft rustling mingles with the subdued roar of the river, as it rushes over the rapids, which rises from below. All the place is afoot with excitement in the preparations for the coming dance; men running here and there collecting necessary articles, and singing to make themselves properly excited, some time before we came out of the house. At last everything is ready, and we walk into the square in the middle of

the town. There are mats spread for us on the ground near the performers. The place is brightly lighted with great flaming poles of dry bamboo, held aloft in the air by some of the boys; these torches well illuminate the dancers, who are clustered round the four chief musicians, who stand in the centre of the *rara*. The voices of these four men are rising and falling weirdly as they chant a strange wild song to the night, to whose rhythm they beat time with sticks upon resonant pieces of wood, raised some height from the ground. Each alternate line is sung by the chorus to the louder beating of the *lalis*, and then the quartette is heard again,—a wild and martial music this, that strangely stirs the blood.

This incantation goes on for nearly half an hour, when at last the motionless performers that are clustered thick about the music, fired with the strain of the song, begin slowly to march circlewise round the singers to show themselves to the silent sitting audience. For some short time this continues, until, at a shrill cry from one of their number, they all clap their hands loudly, turn their backs to us, and stop. When their backs are to us they are, I think, supposed not to be in view—a conventional expression, but one that is understood readily enough. What strikes me so much all through the performance is the absolute precision they keep in their music and their movements; there is never a note or a motion one second out of time. The circling march recommences and goes on for a little time, growing momentarily faster, when suddenly they leave their position and form into one long line for the dance. A splendid lot of men they look—forty or fifty I should think—and very beautiful in the ease of their movements and the perfection of their limbs that their

costume shows to such great advantage. They are all dressed in their best; round their waists the black fringe of the *liku*, which, as a step is taken, falls back from the thigh. Some wear a sash of *masi* tied round their breasts, trailing in long loops of drapery to the ground behind; others have bands of black fringe round their legs below the knee. The hair of all is displayed to the greatest advantage, and every man has his face blackened, and wears his gayest ornaments, his curled boar's tusk at his breast, and feathers in his hair.

Now the men form themselves into two rows, one behind the other, and—the music beating faster, faster, wilder, wilder—the dance begins. How can I describe it? The front row commences: they dance from side to side, they advance a few steps, separating a little distance one from the other, waving their powerful arms and swaying their lissom bodies all as one man. Now they spring in the air and shout all together, and then with a wild cry leap backwards, as, simultaneously, the back row springs forward through the spaces that divide the men of the front rank. For some little time this goes on, one rank leaping back as the rear one advances, without collision or confusion. When one figure is ended they all turn their backs to us, and stand still to regain their breath in a little interval. Shortly a fresh figure begins: all the men join hands and stand in one long line motionless as statues, until at a signal they move a few steps to one side and then quickly back a few to the other, advancing and retiring like a long swift wave of the sea. Very graceful is this, silently performed in perfect accord with the softer music behind them; now they separate into two equal bands facing each other, and go through many charming movements full of that beauty born of great strength

when joined with perfect freedom of action and the grace of unrestraint.

Think how beautiful this strange ballet looks in the wild and fitful flare of the blazing torches, which throws into sharp relief of light and shade the great muscles of legs and arms, and black broad breasts. I cannot describe all the figures they have performed—they are too many and too intricate; but of one I must speak—it was danced with such wild *abandon*, such enjoyment of the utter freedom, yet order of their movements, that to watch it was alone a subtle intoxication. The dark night, the fitful gleam of the torches, the wilder-growing beating of the drums, the slight animal smell of the dancers, and the mad excitement of the band, all stirred me as I never have been stirred before. I felt an animal myself, and my blood boiled to join them. My muscles twitched to leap and enter the revel, and I know that at heart I am as great a savage for the moment as any one among them. Civilisation is but a glaze upon the natural man: how soon I could revert to that from which all cultured races sprang I almost fear to think. This is the dance:—

The men form in one long row before us, wildly excited now by their former exertions, as their flashing eyes, expanded nostrils, and heaving breasts, well show. The music grows louder and more inspiring, and the beating of the little *lalis* more and more rapid, and as the music moves them so dance they, marking every now and then a wild time to the measure by thundering down with their bare feet upon the beaten ground with a frenzied stamp. Suddenly, for an instant they stand still, and then, raising their braceleted

air, they throw their bodies back-

wards, bending so far that their heads are on a level with their hips, and the next moment, with a loud wild cry, like bows relaxed, they are unflexed and bowing forwards till their long hair sweeps the ground at their feet. Now the one long line divides, and the two parties face each other, dancing as though they challenged one another to further feats of skill; at exactly the same moment these two rows of men make the backward motion and then the long forward sweep, thus forming two lines of opposed movement very delightful to look upon. The suddenness of this surprises me every time they do it, and charms me too, for not only is it a figure that an acrobat or a posturer might envy, but it is also full of a strange wild beauty. I cannot tell more of it now, and were I to try to do so it would be to very little purpose. I could never make the scene visible—never make the fury felt with which they gave way to the spirit of the dance. At last, when they must all be weary with their exertions, they face us again in one long line, and joining hands they madly dance sideways for some yards and then surge back again, and wildly shouting three or four musical words, in answer to the musicians at the back, with two loud claps of the hands and a backward leap they sharply turn their back upon us, and the Macau-wata men have finished.

Then comes the Nadroga band. Their dance is different from that of the Macau-wata people: it is not nearly so beautiful, but far more savage; and being a club dance, performed with their weapons, it gives a good picture of what was their old method of warfare. The musicians are changed, and of course the music, each tribe having quite different *mekes*. Now that the Macau-wata men have retired we can see gleaming in

the darkness the *Kai Nadroga*, who slowly march up from the other end of the town with stately bearing, soldierlike. As they near us two or three pretend to be alarmed and try to run away, but the chief of the party, who acts as leader all through the dance, encourages and banters them until they agree to go with the others to battle. This little prelude ended, they all march past us in single file, bearing their large clubs upright in their hands, with a free and swinging step. The chief bears a huge palm leaf fan, two feet across, with streamers of *masi* fastened to its edge. With this he constantly rushes about, waving and flourishing it to direct and encourage his men; sometimes he beats the ground with it, as they used to do in war-time, with the meaning that thus they drove their enemies before them.

Their dance consists of many intricate figures, in all of which the swinging clubs take a leading part. They split up into little bands of four and fight mimic battles, which rage so fast and furious that I wonder any one of them comes out unhurt; but the figures are well known, and every alarming blow is quickly evaded, and no harm ensues. In one figure they divide into two bands, and with clubs raised high they gaze on one another as though flinging out a challenge, then approach, then retreat, and finally rush at each other as though each would crush his man; then, forming again in line, they leap forward and swing their heavy clubs over our heads, and bring them thundering to the ground at the edge of the mats. During this dance the fan-bearing chief was giving his orders and making speeches, sarcastic or boastful, in a high shrill voice, heard above all the din. At the end of the performance all stood perfectly still before us, and said

one word only, "Nadroga," to tell us that that is the sort of thing the *Kai Nadroga* can do. Thus the *meke* ended.

After our swim this morning Marriott informed me that we must wear trousers to-day; and upon my asking why, he said that it was Sunday, and that we must make the day sacred by leaving off our *sulus*, dressing properly, and going to church, which we did in a roomy native house, where an excited Fijian teacher, who lives here, addressed a large but inattentive audience. We have passed an idle day, as, according to the teacher, it would be very wicked to set the natives the bad example of "doing" anything on Sunday. Still we have walked about the place, and bathed several times, and many of the Fijians have been bathing too. They can swim beautifully, and play several games in the water, so that we have not passed an unpleasant day. When the bathers come out of the river and stand on the banks to dry in the sun, they always remind me of antique bronzes, such fine figures have they. Their faces are not hidden with any growth of beard, for nearly all of them shave clean, leaving only a moustache, and sometimes a tiny bit of whisker by the ear. In the rocky bank of the stream they scoop out round holes, where they store a sort of clay with which they wash their heads. I could not think what they were for until I saw the men sitting there using the contents. Some of the chief natives came to dine with us, and they behaved themselves admirably, as I have always found high-class Polynesians do: they are true gentlemen in courtesy and politeness.

In the evening when we went out we saw the thin edge of the very young moon, rising in the still

warm sky above the hills, and one of the Fijians coming out with us, seeing it too, saluted it in a curious manner. He looked at it and greeted it with a prolonged "Ah!"—at the same time quickly tapping his open mouth with his hand, producing by this means a rapid vibrating sound. I asked Marriott to enquire why he did this, and he said, "We always look and hunt for the moon in the sky, and when it comes we do this to show our pleasure at finding it again. I do not know the meaning of it: our fathers always did so."

CHAPTER XII.

FIJI—(*continued*).

ONE morning, after I had been in Natuatuacoko a long time, I determined to start on my journey through Colo, over the mountains to the Rewa. Nadurotalo obtained yesterday, by a feudal sort of prerogative, two wild-looking villains who are to act as guides and personal attendants. I am not going the route that has hitherto been taken by the few people who have crossed this part of Fiji, but am trying a new and original one, and am delighted at the idea of plunging into an unknown country. My packing—the work of three minutes—was done early, so directly after breakfast we started. Marriott came with me as far as the river, and there I said good-bye, heartily sorry to leave him and Natuatuacoko, for he has been all kindness and hospitality, and I have certainly enjoyed the place and its surroundings.

My boys and I crossed the river, and soon began climbing a succession of not very lofty, but steep hills, and thus commenced my long walk across the island. For some few miles our road lay along a ridge, from which we had very fine views. The work was hard, for the heat was intense, still and stifling, like the air of the hottest conservatory. No breeze was blowing in the valleys or hollows, and it seemed like going into a hot bath when one descended from the freer air of the

hills. There was no shade, either, as the hills are bare of bush, and from a distance look as though they were covered with short turf only, but which is in reality a dense jungle of tall reeds, eight or nine feet high, through which one has to push a way in the most fatiguing manner. I was glad enough at mid-day to reach a river, where we all had a glorious bathe. All day I have been struck with the rarity of animal life. You see lizards and a few insects—that is all. Birds are scarce, except in or about the bush: even human life is rare, for we have seen but very few people all day.

For many hours our road lay through the same intolerably hilly country, which is wearying to the spirit as well as to the body, for no sooner have you, at some expense of breath, climbed a hill, than you have to go down on the other side only to ascend another. In one of the few towns we have passed through to-day there were a great many large jars drying in the sun, something like those I saw at Waivesaga, but spherical instead of egg-shaped; and it is still a wonder to me how the women manage to make them so marvellously true in their form. My two boys—Koiau-ho-Amulevu and Doi-doi Matawa are their gentle names—would not let me stay at that town to rest: perhaps it does not bear a good character. I find it a great inconvenience that I am unable to speak the language well, as I could learn so many interesting facts and legends from them did I only know Fijian. I can make them understand pretty well what I want; learn the names of rivers, towns, and mountains, but not very much more.

When I had begun to be very tired after many hours' marching, I found I had the hardest piece of my day's work before me—a great mountain to climb.

Of course we had to go right over the highest parts, the suspicious Fijian fearing to have any one above him; this helps to make a journey in Colo so difficult and tiring. On this mountain I found a little lively black snake, the first I had seen to-day, of which my boys stood in very great awe. I do not think they were frightened of his stinging them: it looked more like veneration, I thought. I should be interested to find that serpent-worship had reached Fiji. Oh that I could ask my boys all about it! The country began to get well wooded as we neared the great mountains—the rainfall, so I suppose, being much greater there.

I was resting, towards evening, under a shaddock tree, eating some of the fruit that had been carefully peeled and prepared by the boys, when an old man appeared suddenly from somewhere, and presented me with a *dalo*, cooked, but cold. This I ate, or part of it, for I was very hungry by this time, and then, understanding from his signs and language that his town was not far off, I followed him about a mile to the town of Nabokatini.

It is not etiquette for your servants to precede you, so that there is no one to advise a place of your coming. When I arrived in the town the alarm of the women and children was great; they all hurried off, and vanished into their houses like rabbits into their warren.

The town is clean, large, and beautifully kept, with coco-palms, which are not common so far inland as this, planted down the sides of the central *rara*. The man who had led me to the place seems a person of some note. Perhaps I had been seen some way off, and he had been sent to meet me. He brought me to the best house in the town, and here installed me, and I was

glad enough to pull off my shoes and fling myself down on the mats till food came. I have just had my supper, which, it may interest some to know, has consisted of a basket of *dalo*, a red earthenware dish of green slime, which I have had to eat with my fingers as best I could, and of which I know nothing except that it is very nasty. I could not manage to eat these vegetables entirely without salt, so I asked Doi-doi to get me "*Na massima*," and to my joy he seemed to understand, for he rushed out of the house at a great pace, and ran up the town. He was away a long time, and my food was pleasantly cooling; but at last I heard panting outside and a great scraping of feet, and in he came, wet and out of breath, but triumphantly waving a *bunch of onions*. Now, I loathe that abominable bulb, but have had to eat one of them, as I could not wound the poor fellow's feelings by refusing altogether, especially as they must be a great luxury here. I suppose they have managed to get a little seed somehow from Natuatuacoko. By wonderful pantomime, performed before a select committee of seven natives, who sat gazing intently at me, I at last made them understand me, and they have brought me some of the pungent sea-salt I spoke of before; the remains of this I have wrapped up, and given Doi-doi to take care of for future use.

A very heavy storm of rain came on shortly after I arrived, so that I have been glad to keep under shelter all the evening. We have had a *yaqona meke*, which is indeed only just finished, and all the people, instead of going away, are gazing at me with absorbed and silent interest as I write in my pocket-book. I have obtained some queer clubs and things of that sort from the men, and one old fellow insists upon

my taking a heavy walking-stick, five feet high and beautifully carved at the top, which, he says, I shall want when in the rivers and getting up the mountains. They can make themselves understood without one word of English.

When I came in this evening there was a tiny little baby, only a few months old, sitting upright, cross-legged, quite naked, and quiet. Him I took on my lap; he was too young to be frightened, and I find that I have by so doing dyed my thin flannel shirt in bright yellow patches with the turmeric with which he was daubed. Babies are always powdered yellow all over with it, and the mother too, for some time after child-birth—for the purpose, I believe, of preventing them from taking cold.

When I left Natuatuacoko, Marriott insisted upon lending me a mosquito curtain, as those pests are so numerous hereabouts: this I have rigged up to the posts of the house, and find that it gives me a little agreeable privacy. My boys, already fast asleep, are lying on the mats not far off, and I feel quite safe and comfortable.

Next morning the first noises of the awakening town roused me, and although I did not emerge from my curtains for some time, I could see what was going on; first of all, the women came out, and with their brooms of twigs proceeded to brush and cleanse the *rara* of all dirt and disorder. Then out came some of the men with an enquiring look as to the weather, but they, finding it chill, returned to their comfortable houses, leaving the inferior sex to continue its labours; then out trooped the children, and shortly the whole town is astir. A good many men slept in the house with me last night, and when I awoke they still were

stretched in slumber, wrapped in their great pieces of *masi*. Without my asking for it, a vegetable breakfast was brought to me; but although it was hot and nicely cooked, I find I can eat but very little of it,—not enough to support me in such hard work as I shall have to do. After this rather tasteless repast, I started out with my boys behind me, looking very patriarchal with my long carved climbing-pole. The same old man who conducted me to the town yesterday led me out of it to-day for a mile or two. Such seems to be his office, but whether a little piece of wickerwork, like a small eel-trap, which he flourishes about a good deal, is the insignia of his rank I know not.

For some little way we followed the course of the river, disturbing wild duck and many beautiful gray cranes from the wet and heavy vegetation on the banks. This river runs through a narrow valley with somewhat steep cliffs, a little like Dovedale, in Derbyshire, only not so beautiful. There are many rapids in the stream, which decreases very quickly in breadth as we ascended it, and so many windings and turnings in it that we had to cross it, I should think, a dozen times. Not having grown reckless yet as to my shoes, I did not like to wade straight through, and it would have taken too long for me to stop and partly undress at each crossing-place, so Koiau, the bigger of my boys, gave me a back over. He is wonderfully sure-footed; how he managed to get me across without stumbling I cannot think, as the bottom of the river is covered with large boulders, quite slippery and smooth. The road at first was so level and pleasant by the river-side that I thought I was going to have an easy day. Alas, how delusive are our hopes! After two or three miles, when our old guide had left us, first putting us

on the right track, we began to ascend the hills, and then began my work. The heavy rain of yesterday has made the narrow track so slippery that I could in places hardly struggle along. Often the hillside is clay, and it can be imagined how difficult this is to climb when thoroughly wet. The path all day has been the merest track, in some places worn deep into the soil, and these are veritable sloughs of despond. I had hoped to find the country get easier as I advanced, but it grows more difficult every mile, up and down incessantly, but on the whole slowly rising, I think,—a slow struggle up a thousand feet or so, and then straight down again the opposite side only to recommence climbing. The country is pleasing, even in this bad weather, and would be, I should think, very lovely did the sun but shine. It is singularly sparsely populated: we have met no native all day long, yet the ground seems fertile and suitable for all the native crops.

I did not rest till mid-day, when the boys produced some cold *dalo* that they had brought from Nabokatini. It is quite the correct thing to take all the remains of the breakfast or meal that you are served with, but I could not manage to eat it, so my boys fell to with an appetite and devoured it all. The amount of *dalo* that these men eat is astonishing. Of course they must consume a great deal, as there is but little nutriment in it, but it is a little surprising to see the baskets of boiled roots that vanish before them like snow in sunshine. Fortunately, I found a wild citron tree, and made one of the boys peel me one of its fruits, whose acid juice refreshed me much. I reckoned that the greatest height we ascended was 3000 feet, judging by Mona Vatu, which is roughly computed to be 4500. We were by the side of this grand mountain, which is

covered with the most beautiful and magnificent bush, excepting just at the summit, where a great bare precipice, too sheer for anything to gain a footing and grow there, shows its face of white rock through the dark green of the trees. The river I had been following so long rises here, and I could trace its windings amongst the hills for many miles far down below me.

After resting at this summit, gained with such trouble, enjoying the loveliness of the rich country all spread out before me, and feeling rewarded by its beauty for my labour, we commenced the worst part of this hard day's work, the long descent. The path was very steep, and lay through thick bush of glorious trees, one sort of which I noticed had its plum-shaped fruit growing out of the thick trunk instead of on the branches, as an ordinary tree produces it, and the ground was of such indescribable slipperiness that I fell at every few yards, and the snake-like roots of the trees, all polished and wet with the rain, were worse almost than the mud. Excuses must be made for me if I used a little of our trenchant English tongue, for nobody understood me, and it *is* annoying to feel your legs shoot out from under you, and yourself slipping to you know not where, until you are brought up short against some opportune but sudden tree. The consciousness that you are sure to fall again within the next few yards, do whatever you may to keep on your legs, is not an agreeable one; and although I was fully aware of the indescribably ludicrous appearance I must present to my faithful boys, when I went sliding down the hill and bumping in the ignominious manner that I know I did, yet the knowledge of this funniness did not soften the bumps. All the same, I was much obliged to them for not laughing at me. It

would have been highly indecorous for them to have even smiled; and whenever I looked at them, although I could not help laughing myself notwithstanding the bruises I suffered, they were as grave as judges.

However Doi-doi told me that there was a town at the foot of the hill, and there I determined to sleep, for I felt thoroughly exhausted. Naloka, where I now am, is a very little town in the valley between Mona Vatu and the mountain I had crossed. Although small it is beautifully clean, and I was led, by the first man I met at the entrance of the place, to a fine new house, that looks as though it had only just been finished. A good many of the houses in this district are built on large square mounds, the banks of which are decorated with big round pebbles and bright coloured shrubs; outside this mound there is generally a broad ditch, which is crossed by a tree trunk flattened on its upper surface, with notches left in it to help you in the ascent to the entrance. At the bottom end of this trunk is scooped a hollow place, generally full of water, which is meant for every one to wash their feet in before they enter the house and tread on the clean mats or dried fern; but they always serve as a species of trap for me, into which I wildly plunge whenever I go in or out after dark. Before I settled in the house I went to the brook, where, whilst I tried to get all the mud off me with which I was plastered from head to foot, my boys washed my *sulu*, and sunk my shoes in the stream to cleanse them a little. I shall certainly dispense with all the clothing that I can to-morrow, or when I leave Naloka. I created no small amount of astonishment amongst the people when I emerged from the stream *faka Viti*, in Fiji fashion, cleansed, if not clothed, and in my right mind. I have made up a

curious garment out of my old, and by this time very much tattered, flannel shirt, and the little white merino scarf that I had brought with me. From the intense astonishment and interest evinced by the majority of the people, it is evident that I am the first white man they have seen, and I have in consequence a sort of "show" feeling, as though I were all the time "on view." On my way back to the house I was very much interested to find a man working at a piece of timber with a tool made of a bit of old iron inserted in one of the handles they use for their stone adzes. It was fastened in with sinnet in the usual way, and was being used in precisely the same manner that they have worked for centuries with their old stone implements. I suppose iron axes and chisels will find their way hither eventually, but at present they have not ousted the prehistoric tool of stone.

I was glad enough to throw myself down on the mats, and I find that I am ornamented with many raw and knobby places from my frequent falls; and bruises of every shade of blue, black, and purple decorate my every part. I fell asleep before my supper came, which arrived, however, about sunset, and was just as last night, all of us dipping together in the same mess of vegetable pottage. This house is not quite the same as most I have been in, for it possesses a little open window, the frame of which is formed of solid timbers covered with sinnet carefully wrapped round them, and stained brown and black in a good design. It has begun to pour with rain again; the mountains will be terrible to-morrow. As I shall probably have a hard day, and being very tired and sleepy now, I will write no more.

To-day when I awoke I found it still steadily

pouring with rain. Anything more dismal I cannot well conceive: alone in a big and savage island, a wet day, no one to speak to, and hardly anything to eat, I felt both hungry and low-spirited; but I got up, and after washing myself at the stream I returned much livelier and better to mend my shoes, which stand in evident need of repair. They have had unusually hard wear the last two or three days, and had already begun to bulge in an unpleasant manner last night when I took them off, and my boys have done further damage by their injudicious and reckless manner of washing them. I fortunately had a piece of string left, with which I stitched them up, poking holes through the canvas and leather with my knife, and threading the string through the holes with this faithful stump of pencil. I hope they will last me out to the Rewa, as I have no desire to emulate my boys and go barefoot. The people here seem kindly, and look upon me as a rare and curious sight, and I have a sort of conviction that people have been hurriedly called in from a distance to behold the white monstrosity. There is a charming and comfortable trait in this people's character, which distinguished them even in their old war-time, and that is, that any man who receives you into his house would sooner be clubbed himself than that any harm should befall you whilst with him, although your host himself might be the very one to kill you, if no longer his guest, for the sake of some trifle you possess that he covets, or because of some slight you may unintentionally give. It continues to be so wet that I shall not leave to-day, but wait for fairer weather, as the mountains would be almost impassable.

When at last I left Naloka my dress was much more native in character than before. I have altogether

dispensed with trousers, and wear my only other shirt —a cotton one—as a sort of kilt, tied round my waist with the sleeves; above this are the remains of my flannel shirt, torn almost to pieces, and stained all sorts of colours, but principally a rich turmeric yellow. It was rather cold when I left, and still raining, so that I did not have the beautiful effects of early sunshine that I had hoped to see from this enclosed valley. Our road—there is now no path at all—lay for a long time up a boulder-strewn stream, with frequent low cliffs of rock and many picturesque waterfalls, which was very lovely, but uncommonly bad walking. The dense growth of the forest came quite close to the edges of the stream in unbroken banks of lovely green; in places the bushes on either side were covered with huge white perfumed trumpet-shaped flowers, a foot long, and very beautiful. I have been astonished all day at the wonderful manner my capital boys find the way, for they have never been here before. Sometimes we lose it for a time, and then they look about them for a broken twig or down-trodden stone, or some such thing, and find it again without much trouble. They really are good fellows, and I am growing much attached to them—they look after me so well and faithfully, finding everything for me; and, I fear, stealing anything that they think will come in useful, or that I shall like.

We came across a miserable little town on this stream, which my boys saw from some way off, and, telling me of it, at once fell into the rear, that I might, as is Fijian etiquette, approach the town the first. I perform my toilet—that is to say, step out of the stream, unfurl my kilt, which has been rolled round my waist, and pull it down as nearly to my knees as it will come—

and boldly enter the town. There were but few people about, but the sudden appearance of a tall white *Papalagi* from the bush so frightened one old gentleman standing on a rock in the middle of the stream, that he at once and without warning fell straight into the water. There will be a wonderful amount of talk when all the men have come in this evening, and I fear some few curious mis-statements, for we silently walked through the place, and as silently disappeared into the bush on the other side.

The first part of our walk to-day being almost on the level, I again hoped for its continuance, and again have suffered disappointment, for we early left the stream and have been climbing ever since, often to a great height, even worse than the other day. It is useless for me to speak of the difficulties of getting up these mountains when there has been much rain: I could never make the painful-comic nature of it all understood. A Fijian gets along pretty well, sticking his great strong toes into the ground, where a shod European is slipping every moment. I made Doi-doi walk in front, and Koiau, who was close behind, saved me many a nasty tumble by timely aid in the rear. I am getting into much better condition, and do not feel the excessive fatigue that I did at first, and even my temper is getting quite accustomed to the frequent shocks of finding myself quite unexpectedly lying on my back. The clay banks, the crumbly earth, the slippery roots of the trees, seem so many artfully contrived man-traps. Even my boys cannot always keep their feet, and I must own to feeling just a *little* bit pleased when I found that I was not the only one of the party that could not keep upright. But although their physical equilibrium has once or twice been destroyed,

never once has anything broken down their mental gravity, although it must sometimes have been agony for them to contain their laughter when I was sprawling helpless on my back, smiling weakly at the sky, or shooting rapidly over a bank and alighting, generally unhurt but somewhat dismayed, at the bottom. It must have been doubly difficult for them to wear a sober face, for they are merry dogs, and we often all three enjoy a good laugh together at any comical mistake they or I may make.

I find that I can get along very much better in my present costume, but the gigantic reeds through which we very often have to fight our way cut my bare legs, and just at the ankles, where the feet in walking catch the lower leaves, I already have bad wounds from that cause. We are so constantly in the water walking up the bed of a stream several feet deep, that being frequently the only available road, that I find it is useless to try to wear socks, which only sink into my shoes and form bundles of damp unpleasant merino, so I have discarded them. My shoes soon drain dry when I come out, for they have great gaping holes at the sides, in and out of which water, sand, and pebbles rush quite easily. The scenery all day has been magnificently tropical, and the views from the mountain tops have been grand in the extreme, although frequently envious clouds have hidden a great deal; but all the same I was very glad to hear, at about three o'clock, the rush of a river far far below us, and to think that we should soon be on level ground once more after so hard a day of climbing. The descent to the river, which my boys say is the Wai Dina, was almost vertical; but we got down at last, and I plunged into the strong deep stream, and,

crossing it, was very glad to rest on the other side and eat some of the cold provisions that Doi-doi had had the sense to bring from Naloka, and admire the mountain we had descended.

The rest of the day we have been walking along what I should say is one of the loveliest valleys in the world, but it was so cloudy that I never could get a very extensive view of it. The vegetation is most wonderfully beautiful, and of quite a different type from that on the other side the ranges. These mountains intercept the clouds, which distil themselves here in torrents of rain, fertilising everything, but leaving the country on the other side dry for many months in the year. The great extent of mountainous country and this very great rainfall account for the size of the numerous rivers of Viti Levu, which are really surprising when the size of the island is considered. We were in the water most of the time, which is not a pleasant way of progressing, as the stream is so strong that you cannot lift your feet well for fear of being swept off your legs, and the large round stones at the bottom are very uncomfortable. I blessed in my heart the old man at Nabokatini who had told me I should require a strong pole for the rivers: the one he gave to me has been invaluable. I found the water very cold, too, after a time, as did my boys, who shivered horribly, and seem rather done up; but I cheered them with promises of a big fire and plenty of food at the town we should sleep at to-night.

After some miles along the beautiful winding river, climbing huge boulders most of the time, and at others hanging on to the steep rock walls round which in some places the river rushes, we passed through several towns which my boys recommended me not to

stop at, they being *saca*, or bad, but to push on to *Nakoro na Buli*, the town of the chief of the district, which is called, as far as I can judge from their speaking, Narokorokoiawa. I was glad to get on as far as possible, as, since I left the mountains, I have felt no fatigue, and only offered to stop because I thought the boys looked fagged. We passed, before we reached the town, some large and well-constructed weirs in the river for fishing purposes, which had beautifully made traps at the outlets that gave me hopes—to think that I could stop to consider such things in the midst of such lovely scenery—that we should have fish for supper, for I am not only tired of vegetables, but have a sort of half-starved feeling, because, unlike the natives, I cannot eat enough of them to support my strength. It was quite dusk when we reached the town, and my boys, knowing that they were shortly to see *Na Buli*, most carefully washed and tidied themselves: they are deferential to a chief, almost to obsequiousness.

The town is large—one of the largest I have seen—and is built some height above the river: it is clean, and of a really handsome appearance. The house of *Na Buli* is a very fine one, raised a good height above the village level, upon a bank faced with ornamental pebbles. The one doorway is reached by a log, levelled on the upper surface; but I found this one much more difficult to ascend than usual, as the inclination was so great and the surface so slippery with the rain. I approached the house in noble style, but had to ascend to it in a very ignominous manner—on all fours in fact, like a cat on the tiles. The house was quite dark when I entered, and it was some time before I could see that it was full of men receiving their even-

ing meal. The system is this, I believe: The whole of the food is brought, after cooking, to the chief, who distributes portions to the heads of families, who again divide it amongst the several members of their household. This was going on for a short time after I arrived, and they served us with a portion too of boiled *dalo*, .which I was glad to get, though I was greedy enough to hope for something more satisfying. After I had been there some little time and had smoked a *suluka* or two with *Na Buli* himself, in was brought a repast of a fowl and more *dalo*, which we have enjoyed very much, and of which Doi-doi is now secreting the legs, and I am pretending not to see him.

For some time I have been holding a sort of *levée*—indeed it is not over yet, for two young men are just bringing in a very old one to look at me, who could not manage to get here by himself; he is more covered with hair than any human being I ever saw, chest and back as well. Perhaps his affectionate grandchildren have preserved him as a curiosity. This old gentleman has approached quite close, too close,—but are we not all men and brothers,—and is now at this present writing stroking my leg, which tickles me horribly, and thinking doubtless that it is very white and funny. Fiji is very different from Tonga and Samoa, and in my opinion not half so pleasant, for only the men of the place and none of the women come to see you.

I have just obtained a wonderful selection of things here—clubs, *likus*, wigs, bracelets, and beautiful necklaces of curved pieces of whale's-tooth ivory, and many things which I only hope I shall get home safely. Amongst them is a curious long four-pronged fork,

which I found on a sort of shelf above where I am writing. I think it must be, from the descriptions I have heard, a human flesh fork. Rather a shuddery sort of thing to find just as I am going to sleep, *for it is stained with use.* I put on one of the ivory necklaces and was very much laughed at, for it appears I had committed the absurdity of putting it on with the points curving inwards, and not outwards, as I should have done,—seemingly not a very great mistake, but apparently about as ridiculous in their eyes as putting on a coat turned inside out would be in ours. *Na Buli* has pointed out a place to my boys, on the raised part of the floor, where they are to put my things, and there I am going to sleep, very soundly I hope, in the next few minutes.

Seeing a watery gleam of sunshine falling through the little window of the house gave me great hopes, when I awoke this morning, that we were to have a fine day. But that hope became feebler when I left Narokorokoiawa, and no patch of blue was to be seen in the whole sky; it has, after all, rained more or less the whole day through. We left early this morning, four or five young men of the place coming to see me to the end of the town, and to point out the way. When I left the house I slept in those people that were inside said to me "*Salako*," meaning "You go;" to which I made the proper reply, "I go, you stay." One or two of them then took my hand and smelt it, making rather a noise about it, which is here a very courteous and respectful method of salutation and farewell, but a little surprising just at first.

Our road for some little way, as generally at starting, lay through the reeds at the side of the river, which were well trodden down by the frequent passing

of the townspeople, and then up a very stiff wall-like bank, with holes in it all the way up for you to put your feet in. My boys, who are carrying the things I got in the town, cannot understand what I want with such articles, and have asked me to let them throw all away as being rubbish and of no use to a *Papalagi;* but I have sternly commanded them to bring every one, and they have done so, although I think they believe me very mad to want them. When we were some miles out of Narokorokoiawa the path seemed to lead us to the river's brink, and we completely lost the way. We crossed, but could not find a trace of it on the other side, and recrossed, but were none the wiser; and I was just about to send one of the boys back to bring some one to show us the road when we were put right by an obliging old fellow, who ran after us to lead us to the proper ford, and walked with us about a mile to show us the path. These islanders certainly compare very favourably with the white savages of England.

We did not linger long by the river-side, but turned to the mountains again, and have had another day of almost constant climbing. These mountains are certainly very fine, especially one we passed—Nacau by name—which is of great size, and singular beauty of outline and formation; they are all covered with most magnificent vegetation. The tree-ferns on these high mountains are as fine as any I ever saw in New Zealand; and the trees—great forest giants—are all joined and bound together in a glorious embrace of luxuriant creepers. Bushes and ferns of all sizes grow between, so that there is no single unoccupied square inch of space. All this hard work and climbing has put me in grand condition, and I can do my day's march

without fatigue; but it is beginning to tell on my boys, who are not accustomed to continuous exertion, and who have the disadvantage of carrying my two parcels between them. I noticed to-day, when climbing the stiff mountains we have had to ascend, that I was always first at the top, and they have seemed very done up when they have joined me. I hope that they will hold out to the end, as I should be very sorry to part with either of them. The only thing that has troubled me has been the painful wounds on my ankles, which have been a nuisance to-day, as they have bled so much; I cannot keep bandages of any sort on them.

Towards the top of one forest-covered mountain we suddenly met five women laden with bundles, who were on their way to Nadrau; they were young, but looked abject and prematurely old, and seemed horribly alarmed at meeting us. Shortly after, when we had gained the summit and were resting on a great fallen tree, out of the bush came the men of the party, faces blacked, *maros* reduced to a minimum, but with huge turbans on to keep their hair dry. The first man did not see me at once, and came up flourishing a club in an alarming manner to frighten my boys; but when I greeted them and he saw me, his manner altered and he became most reverential. They all stood still and on one side as I passed, and doffed their gauzy turbans as a sign of respect. My boys talked to them for a few moments, but I walked on with a lordly air. Some way farther on we met with more of the party, and they gave us instantly two short bamboos full of cooked food, which still was quite hot, as they plug up the open end of the bamboos with *masi*, and the steam generated keeps the food hot for many hours. This presentation seems a graceful thing to have done, but I am not

quite sure that it was so much a spontaneous act of kindness as one prompted by fear; for the Fijian, beneath all his boasting and bombast, is an arrant coward at heart.

In the early afternoon we were in a charming little valley, walking, as usual, up the middle of the stream, when I noticed a pleasant bank where I thought we would take our mid-day meal; but no sooner had we comfortably settled ourselves than great raindrops began to fall, and we were threatened with a very heavy storm. Doi-doi suggested that we should make for a little town not far off, and I thought we might shelter there; so they only waited for my "*io*," and off we all ran to it, and entered at full speed, to the inexpressible surprise of all the worthy inhabitants of Tabua. I chose what I thought was the best house, and, stooping, went in. The astonishment of a large household of Fijians when a white man — the first ever seen by nearly all of them — suddenly comes through their doorway and enters the house, may be imagined. They did not let their astonishment make them forget their hospitality, for they pulled down a clean mat for me to sit on, and gave us food from the great jars in the ashes of the fireplace. Of course the whole place wants to see me, and very speedily the house is full; but the man who is apparently the head of the establishment would not have it, and, seizing a stick, drove nearly all of them out again into the rain, striking right and left with twenty-schoolmaster power, whilst I sat unconcernedly looking on; it would not do to laugh, as they judge you entirely by your behaviour.

As I like the place I have stayed here, and have enjoyed my visit; it has given me a picture of Fijian family life that I had not seen before. There are

women present, who are cooking, and weaving mats, and employing themselves in general household pursuits. The weather being so bad accounts for so many men being at home. They very wisely do not care to work out of doors in heavy rain; they are occupying themselves in shaping and carving some heavy wooden clubs, several of which are about in different stages of advancement. A Fijian does not set himself down before a piece of wood and begin to work there and then, and continue at it till it is finished, but it generally lies about for a long time before it is perfected, as he only takes such things up at odd moments and employs his spare time upon them.

My suite was augmented when I left Tabua next day, by three men, who were also going to the Waina-mala; two of them bearing bales of *masi* to the chief there, and the third—who was distinguished by his carrying a short black wood club—as a sort of officer or overseer. The *masi*, being a perishable sort of goods if it gets wet, was carefully wrapped up in large green banana leaves, from which the rain ran off completely. The Fijian *masi* is different in character from the Samoan *tappa*, the finer sorts being, I think, softer, and the decoration much more beautiful. The Fijian artist seemingly possesses a finer fancy than his eastern brothers. I never saw in Tonga or Samoa any of the filmy, gauzy *masi* that they make here, which is a most delicate fabric, tinted through all shades of brown, according to the longer or shorter time that it is exposed to the wood-smoke that colours it. The three men who accompanied us have been of great service; they have helped me up and down some steep and slippery places which I certainly could not have managed with safety alone, and my boys are too done

up to be of much assistance, besides they are generally some way behind. The scenery has increased in grandeur and the vegetation in luxuriance and beauty; the light clouds of mist above which we often mounted did but seem to add to the charm. In one place when at the summit of a mountain I looked across a valley quite hidden by white and billowy clouds, into which there poured and disappeared a silvery cascade of water, overarched with great graceful tree-ferns, from an opposite peak that seemed to float on the vaporous sea. All this loveliness I feel deeply, but my dusky companions do not seem to share my pleasure: they appear to be absolutely careless of it all.

When at last we struck the Wai-na-mala it was nearly sunset, but fortunately Nivudini was not very far off. The sun, which all day long has been chary of his beams, shone out royally as he set, and flooded the whole valley with gold, till stream and rocky cliffs and trees were bathed alike in one great radiance. At a bend in the river, on a little sandy point, we found a picturesque group of men working at a canoe, which is, as usual with river canoes, formed of one solid trunk. A bright fire was beside them, where they burned the chips, and it seemed the day's work was done. One man of the party stood a little way off holding aloft his *masi sulu* to dry in the wind—a statuesque nude figure that showed dark against the luminous water. The whole scene is stamped on my mind, and is one that I feel I shall never forget.

Nivudini is a large town, built on a hill above the river, and is a place famed in cannibal annals. The houses here are different from the Navosa ones: they have not the characteristic dome-shaped roofs, but are either square or oblong, with a level roof ridge. Some

of them are entirely covered with a thatch of brown leaves, roof and sides and all, and as they have no eaves they look more like gigantic hayricks than anything else. They are very large, and the one I am in, the house of the *Buli*, is a fine one, with entrances on three sides, all of which have the usual bridge leading to them from the opposite bank—necessary in this case, as it is surrounded by a moat full of water. The mound on which the house is built is not raised very much above the level, and on the banks grow the most beautiful crotons, coleus, and other plants whose names I do not know, but whose foliage is very lovely. Everybody's voice is hushed here in the presence of *Na Buli*, and the house is very quiet; he seemed to take but little notice of me when I came in, and I do not like the look of him.

After my boys and I had had our food brought us, we and all the wild-looking men in the house sat round a fire on the floor, and smoked and talked for some time. I have not felt comfortable all evening: perhaps it is because I am tired, and consequently a little nervous. *Na Buli* is not hospitable, but surly and evil-looking. No *yaqona* has been brewed; and when I made my boys ask him for a canoe to take me down the river to-morrow, he rudely refused, and said there were none, which is an atrocious falsehood. I am annoyed at this, as my feet are sore, though little blistered, and the wounds at my ankles are painful. The men have been eyeing me—as usually in an evening, whilst my clothes are drying, my attire is light and curious—in a very hungry manner, and they have felt me all over too, softly pinching me on back and breast, till just now I have objected. Perhaps they mean nothing, but I cannot help having an eerie and fearful

feeling when I think how many human feasts this house has seen, and how very short a time it is ago since such things were of frequent occurrence. None of the people would believe at first that I have come across the mountains from Natuatuacoko: they say it is impossible. I suppose they think me as big a liar as they are, but at last my boys have convinced them, and their admiration is great. Now I am too tired to write more; my boys are asleep at the far end of the house, and I can hardly keep my eyes open. A wickerwork screen has been fitted into each doorway to keep out wind and rain, and a huge curtain of painted *masi* has been let down at this end of the house to exclude all draught. Although I know I am in danger I somehow am not afraid. A sort of apathy is on me which prevents any acute thought or feeling: it is induced, I think, by fatigue and want of nourishment, but I cannot tell. I am no safer awake than I am when asleep—no more protected now than then; so I shall go behind the curtain and have no doubt I shall sleep well, for my brain is heavy and my limbs are tired.

There are several *lalis* about Nivudini, of which I think I have written before; they are a sort of drum, about four feet long, boat shaped, and formed from one thick log of wood. They are very resonant when beaten by an active and lusty youth, and it was an early application of the beater to one of these cheerful instruments that aroused me with a leap this morning from my slumber, fearing I know not what. I got up early and started for a walk through the town, which seems to be divided by a palisade into two parts, as far as I can make out to separate the chief's division from that of the common people. The insides of these

leaf-thatched houses are all beautifully finished off with sinnet, and are made comfortable with fern and *masi* hangings. Before I returned to the house I walked down to the river, which astonished me by its size and the great volume of its waters; its nearest shore was crowded with canoes, any one of which the *Buli* might have let me have, but it seems he wants to keep me here, which he shall not do.

When I was going back into the town I met Koiau and Doi-doi, and found that they had missed me from the house, and fearing all sorts of things had been looking for me everywhere; they were eagerly talking when I met them, and ran up to me looking most delighted to find me safe. There was no one about in the outskirts of the town where we were, and they began to talk most volubly, and performed an amazing amount of pantomine. I could not understand all the former, but I quite saw by the latter that they told me of some danger, and urged me to leave the town at once. Then seeing a party of lads approaching they assumed a languid walk, and looked the picture of carelessness and indifference. These boys were carrying by its tail a beautiful lizard, about fifteen inches long; it was green, with vivid patches of turquoise blue about it. I am undecided whether it was a chamelion or an ordinary lizard, but it does not much matter. I know it opened its mouth at me in a highly threatening manner when I attempted to touch it, as I did in my efforts to look unconcerned. As these boys had come up we boldly returned to the town, and entering the house made a vain pretence ting some breakfast, for which I, for one, had petite, the adventure was too exciting and

My boys sat there with their *dalo* some little way from me, as calm as sphinxes, and I endeavoured with a beating heart to emulate them, till *Na Buli* and the two men with him were called out of the house, when my lads sprang up, snatched the bundles from the floor, gave me my stick, and signalled a start. We slipped silently from the house, and, crossing the bridge opposite to that by which *Na Buli* and the men had gone out, crossed the *rara*, and reached the river unobserved. Here we had to cross a little but deep backwater of the stream, and asked a man standing on the bank to paddle us over: he refused—I suppose he had had his orders; so, shoving past him, we jumped into the canoe, and with a few strokes of the paddles we were on the other side. The man ran quickly up the hill towards the town as we plunged into the wilderness of tall reeds that clothed the opposite bank, and a few moments after we heard the sound of a *lali* beaten vigorously, and my boys changed their rapid walk to a run;—need I say it, so did I. We struggled and hurried some little distance down the uneasy bank, fighting with the cruel reeds till we thought we would put the broad river between us and Nivudini, and I was about to take off my shirts and swim, when a very long canoe—forty feet in length I should think—swept opportunely round a bend of the river into view.

This canoe was being paddled by several men; and the owner and a woman, a fine-looking couple, who were sitting in it, offered to take us over, and coming to the side they both stepped into the water with the greatest kindness and unconcern, to make room for us. The canoe was a comfortable one, with a platform built out over the outrigger, which formed a sort of

little deck on which was most of the cargo, and a broken earthenware pot in which was a little fire, where they could conveniently light their *sulukas*.

After we were landed on the opposite shore, and I had waved my thanks to the obliging owners of the canoe, we had to ascend a very steep and cliff-like hill round which the river flowed, the track up which was so slippery that I could hardly climb it; but a native who had joined at its foot plucked and strewed leaves on the ground before me, upon which I stepped, and thus prevented myself from slipping. Feeling more secure with the river between me and the town we had so hastily left, we relaxed our pace. Beyond this hill there was a moderately good path. The country has entirely changed its aspect and become almost level, or only pleasantly undulating: through it flow many broad streams and rivers in a very confusing manner. The day has been a glorious one, and I have enjoyed the richness and beauty of the country all the more because of the difficulties and dangers of the mountains I have crossed, which lie mysterious and blue behind me now.

From a long way off we could see Nakorovatu, and my boys told me that there I should find a *Papalagi*. I was glad enough to think that I was to meet a man of my own colour and nationality after so long a time with savages. The gentleman who lives there is a sort of magistrate of the district, and lives farther up the country on this side of Viti Levu than any one else cares to do. We would not stay in any of the towns and villages that we passed through, but marched straight ahead to Nakorovatu, outside which we all three performed, at the side of a little stream, a most careful toilette, and making ourselves as presentable as

possible we entered the town. I walked to a very large native house that I knew must be Mr. Carew's. As usual, it consists of one immense room, seventy or eighty feet long, though not like Colo houses, as it is much longer than it is broad, and without their fine high roof. There I seated myself on a chair, which seems strange after being so long accustomed to the floor, and there I received the pleasant intelligence that Mr. Carew had left a few days before and gone to Baa, and that there was no white man or English-speaking person in the place. I was bitterly disappointed, for I had looked forward so much to seeing him here.

However, I made myself at home for a little time and rested, telling Mr. Carew's boy, a New Hebridean, with a terrible squint, that I should like some tea and something to eat; the first of which he forthwith made, but the second he could not produce, for the good reason that he had nothing. I enjoyed the tea amazingly, for I have missed that more than anything else upon this journey. If ever (which is highly improbable) I do such another one, I will take tea and a tin can with me, so that I can make it. I hope that Mr. Carew, if ever he hears of my occupation of his house, will forgive me, for I was very tired and thirsty when I got there to-day.

My boys made enquiries as to where we should find the next white man, and receiving the information we trudged off again through great banana plantations for a good way down the river, where we found, just at the junction of the Wai-na-mala with the still greater Wai-ni-Buka, a little house where an adventurous white opened a store some years ago. He was the first Englishman who penetrated so far as this up the

river. Here I was most hospitably received and entertained in the friendliest manner, and here I now am enjoying the company of my kind. How surprised my host and the one young Englishman that lives with him looked when I appeared at the door of the house, dirty, ragged, and tired, and said that I had come over the mountains; and how I talked, to be sure. The relief of being able to speak again after so long an enforced silence was so great that I seemed to be pouring out all at once the stored-up conversation of weeks. The flood of talk surprised me: I do not know what the others thought of it.

After I had had some European food, than which I thought I had never eaten a more delicious banquet, we strolled to the beautiful river and had a bathe. I dare say they thought I wanted it, for although my boys have often washed my shirts, they are so stained and discoloured, besides being torn to tatters, as to look fit for nothing but to be thrown away. My host would not let me swim, as the river is so infested with sharks. Returning to the little store, I watched the natives coming in to buy and exchange things; here I paid off my boys, having arrived at my destination, and they immediately proceeded, aided by a committee of about twelve friends they have made, to expend the money I gave them. They have purchased a most extraordinary selection of things to take back to the mountains, principally huge knives and bright-coloured cloths for *sulus*, and each has chosen a broad leather belt, with a double-headed serpent as a fastening. I was quite sorry to part with these boys, for they have been faithful, honest, and kind, although only Fijians. They did not want to leave me, and begged me to take them to Levuka, and

thence to England, thinking, apparently, that those places are contiguous. I could not do that, so they left me here, and started some hours back upon their return journey; and that is the last I shall ever see of Doi-doi Matawa and Koiau-ho-Amulevu.

We have been playing cards, and now my host has had a comfortable bed made up for me on a home-made sofa, and I feel quite ready for it. All the furniture—there certainly is not very much—is home-made, and shows great skill in its construction, and strength too, a very necessary quality.

My host has been telling me to-night of the state of this part of Fiji when first he came here some years ago: then every town was at emnity with the next, and every one's hand raised against his neighbour, simply for the reason that he was his neighbour. He tells me that the sound of the "death *lali*" was a very frequent one then, and was so well known that every one was aware of what was going on. Often, past his little house, has he seen the canoes go down the river bearing gifts, from one chief to another, of dead men for the oven, and sometimes bloody joints, or limbs just torn from the victim, wrapped in fresh leaves, for the crown of a feast. These things were so frequent that they lost all horror at last from their very familiarity.

CHAPTER XIII.

FIJI—(*concluded*).

THIS morning my host procured me a canoe, and a boy to paddle it, to take me down this river to the Rewa, a very long day's journey even with the current, but one that I have looked forward to for some time. What a merciful dispensation of Providence it is that we cannot foresee events: had I been able to do so I should not have anticipated with such pleasure the journey I had to make. I said good-bye to my host very early, and descended to the river, where my canoe was moored to a pole stuck in the bank. I found the canoe to be very small, and not at all a comfortable or safe one to look at, and I could only get one boy to paddle; but off I started. These canoes are simply hollowed logs of wood that float on the water in a very unsafe manner, and are only kept moderately steady by the heavy outrigger of wood. Directly we two stepped into this one, it sank until there was but an inch or so of the sides above water, so that we were compelled to sit very still: a sudden movement would inevitably have upset it.

It was a perfect morning, sunny, hot, and clear, and the scenery was very charming—flat on one side, and with a high tree-covered bank on the other—and for an hour or so we paddled comfortably down the quiet river. Farther down we came to most beautiful hills,

softer in outline than my conquered mountains, that are covered with bush, green and rich, to the very water's edge, where they were doubled in the clear depth of the stream. We passed many native villages, happy-looking and clean, often noisy with the sound of the *lalis*, and surrounded with their great-leaved banana plantations, which waved in the river breeze like a verdant sea. Streams join the river here and there, and over the rocks pour shady little waterfalls, delightful to look upon, from their green dim bowers. Later on in the day we passed a magnificent cascade, which lay back some way from the river; but I caught glimpses of it—as the canoe glided, dreamlike, past—white and foaming, through and over the darkness of the bush, as it dashes from its rocky cliff in three falls to the pool below. Now and then a bright bird flashes out before us, and wild duck rise quacking from the river in numbers as the canoe disturbs them from the sedges. We met several canoes, some of them very large, one of which must have been sixty feet long; nine men, one behind the other, were paddling it, and many more were sitting in it as well. They travel very quickly, even against the current, often punting at a good pace where the stream is sufficiently shallow; on the boughs that fasten the outrigger to the canoe lie poles of different lengths for that purpose.

For three or four hours we proceeded calmly and monotonously enough, but about mid-day a stiff breeze sprang up, which was blowing strong against us, and broke up the still surface of the stream into great ripples which frequently flowed over the edges of our low-sunk canoe. I kept constantly baling with a rude bamboo scoop, but found I could not do it fast enough, and the water gained upon us. Then my boy had

recourse to a clever trick to get rid of it, which very much surprised me at first, as I was sitting in front with my back to the paddler. Hearing a queer rushing and splashing noise behind me, I turned round to see what was going on, and found that my boy had put down his paddle, and, carefully balancing himself on one leg, he lowered his body till his hands could rest on either side of our frail bark, and then with the leg that was free he scraped the bottom of the canoe, his huge foot seeming to completely fill up the hollow, and sent the water flying out behind him in a truly astonishing manner. We progressed very slowly, and I much missed my two good boys, and wished that I had them with me instead of this one, who seems both stupid and careless.

The wind gradually blew stronger and stronger, and, the ripples increasing to waves, we filled constantly, and it was one continuous bale to keep afloat, until at last, when we had come to a rather open reach of the river, they were too much for us, and, completely filling the canoe, we sank like lead. I struck out for the shore. Remembering how infested this Rewa River is with sharks I did not care to disport myself long in the water, but the boy stuck to the canoe, collected all the bundles, and, dragging them to the bank, swayed the canoe about from side to side till all the water gradually swilled out of it, when we re-entered it and proceeded. The boy has never smiled, nor seemed the least surprised at anything, so I suppose this is the usual manner of going down the Rewa. If it be so, I do not approve of the method, for I was as cold as ice. The wind, blowing up the river on to my saturated clothes, made me shiver with cold, and altogether it was very miserable.

It was a wretched journey. For hours we crept along under one bank and then under the other, wherever we thought the water was a little smoother, filling and baling, and then getting on a little when the wind fell. The sun shone out for a short time when we reached the junction of the Wai-ni-Buka and the Waidina, which is very beautiful. A great cliff rises from the river, all clothed with beautiful creepers and wooded at the summit. The sky for a time was blue, and gorgeous parrots, green and crimson breasted, flitted amongst the trees. In the slow stream great golden balls, the shaddock's fruit, were floating and whirling in the eddies beneath the bank. The river is broad, astonishingly broad where it is joined by the Waidina, which flows from that strange interior land I have left. A heavy rain came on and wet me through again, and I learned how surprisingly cold one can be even in the tropics: I was literally blue and chattering. It is most fatiguing to sit in one of these small canoes, as the position is so very cramped. Especially uncomfortable I found it to-day, for when the canoe sank the little board I had to sit on floated off, and I have had to use since a couple of bamboos, which have tattooed me in a manner that feels painfully permanent.

We began to get amongst white settlements in the afternoon, as the flourishing sugar and other crops on the banks showed me. The level country is in places admirably suited for sugar growing, and this is, and will be, I suppose, the staple produce of the Rewa. I landed at one of these plantations, being too cramped to sit longer, and walked through it, and a long way down the bank of the river, struggling through the dense reeds, and badly cutting myself in the old places

on my ankles. I found the canoe some mile or two down the stream, and again proceeded in much the same way. We were nearly swamped two or three times, and were only saved from sinking by the boy jumping out into the stream, and staying there till I had baled all out. Although the rain fell in torrents all the afternoon, and although I was scarcely in a mood for admiration, I could not fail to see how beautiful parts of this river are, with now its high banks verdant with trees and then its level parts rich with waving crops of sugar-cane and maize. Late in the day, when we must have travelled many miles down the stream, signs of European occupation became much more frequent; large flat-bottomed punts passed us, for the carrying of the cane to the crushing mills farther down; and sometimes an European dwelling-house would peep out from the trees on the bank. The river is full of a bivalve shell-fish which is in great demand amongst the natives, and in one or two places I saw women working away in the water collecting a supper of this dainty for her lord and master.

Fortunately the wind fell in the evening, or we should never have arrived at Lomaloma to-night, which we did, but long after dark. I was glad enough to find myself at this my destination, which is the first little settlement of whites one comes to from the interior, for I was cramped with sitting so long in the canoe, numb with cold, wet through, and very hungry, not having broken my fast since the early morning. My costume by this time is so tattered and reduced as to be barely decent, so a little Maltese doctor, whom before I had seen in Levuka, has most kindly lent me clothes, from which a foot or so of wrist and ankle

protrude at either end, so that I now look very like a boy that has vastly outgrown his garments. But what care I, they are dry and warm. Many people have come into the house, and all tell me that I may think myself very lucky to have arrived here safe and sound, for since the terrible outbreak of measles in Fiji, some years ago, the people have in many parts relinquished their veneer of Christianity and have returned to their old faith, believing their ancient gods to be angry with them; and of course with the new belief has gone the new civilisation. This applies only to some of the tribes, for the more distant ones have never wavered from the faith of old times. Nearly all the inhabitants of the place—not very many by-the-by—have come to see me, and I am quite a little hero on the Rewa River for having accomplished this difficult and dangerous journey. It has all been very wonderful, very delightful, and very exciting, but I must confess that civilisation, now that I have a taste of it again, has certain charms of her own. Good-night.

For several days I remained at Lomaloma, waiting for the little boat to arrive which was to take me back to Levuka, but she did not appear as soon as was expected. I passed a very quiet time in that dull and somewhat ugly little place, which is built on the high bank of the river, and consists of the house I stayed at, a little store, two or three wooden houses, and a sugar mill that was not working. All that I did was to visit a sugar plantation and see the imported labour boys hoeing the cane, as the doctor said I must give my feet entire rest if I wanted them to get well, as these Fiji wounds often remain unhealed for many months. I began to get anxious lest the little river-

boat should not arrive until too late for the mails from Levuka; but one day, after many false alarms, the snorting little flat-bottomed craft came into sight, and I went aboard. We stopped to take in sugar at one mill, and then went down the river as far as Waimanu. Sugar is grown to a great extent on the banks, and there is plenty of ground yet unoccupied that is in every way suited to the cultivation of it. Whites are beginning to settle thickly about here, and a large mill is being erected for the crushing of the cane, which is produced annually in larger and larger quantities.

Mosquitoes are terribly annoying on this river—worse almost than anywhere else I have been: they allow one no rest. I have been told a singular story, related to me as a fact, but for the truth of which I will not vouch, about a wondrous species of tree that attracts these pests to it, and which is completely covered, branches, leaves, and trunk, with a black mass of them. I think, did I live here, I should cultivate a good many of them about my premises.

A very large meeting of natives was going on at Navusa, a town close to which we stopped for the night, in a large well-built English house. They told me that as many as three thousand Fijians had been at it. The whole river was alive with canoes when we were there, bringing in provisions for the immense crowd gathered at the meeting, and a fleet of them, of all sizes, lay fastened to the bamboos and poles driven into the mud of the bank. Two of Cakobau's sons were there—very fine, big men, and speaking English; and this morning one of them took me across to Navusa, and we walked through the town and saw all the doings. At the place where we landed some magnificently carved canoes were lying—sea-going ones, that can sail in

the most wonderful manner, even in bad weather. I could not quite discover what was the exact reason for this meeting, but the whole town was crowded with natives, all in full dress, and painted as to their faces, and dyed as to their hair, in the most marvellous fashion, which latter is immense in quantity, and dressed out in a manner that would be a credit to any barber.

Andi Quilla, Cakobau's daughter, is the chief of this district, and generally lives at Navusa, but was away to-day at Bau. We went to her large house, whose bank is literally gorgeous with crotons, bigonias, and coleus, and there watched the game of *lavo* that was being played by a party of men along a mat stretched upon the floor. It was just feeding time when I was in the town, and I saw the ovens opened and the food taken out for distribution. A Fijian feast means profusion for all, even to waste. There must be much more cooked than all can eat, and every man must have more given to him than he can consume, that he may have the exquisite gratification of wasting what is left. Never have I seen such piles of food. Baskets holding a hundredweight or so of *dalo* were stacked together in scores, pigs roasted whole lay in great rows, regular walls of *yaqona* were erected in places, and tobacco was plenteous; so that nothing was wanting to complete the Fijian paradise except, perhaps, *bakolo*.

I noticed in some of the houses where the men were lying waiting for their food that the fern-covered floor was roughly divided into little compartments by low rails, in which was just room for one. This was done, I suppose, to economise space. There were a good many Tongans about the town; not only their

features and lighter colour proclaiming their nationality, but their characteristic swinging gait as well. The most eastern islands of Fiji are under Tongan chiefs, and inhabited principally by immigrants from Tonga. In the eyes of the Fijian men the Tongan women are much better looking than the Fijian. This causes great jealousy and unhappiness amongst the Fijian ladies, because the men will take their wives from the fairest, as men always will do, and go to Tonga for women instead of choosing brides at home.

The little steamer was ready to start soon after mid-day, and some one had to come across to Navusa to look after me and tell me that it was time to leave, so I had to quit the interesting scene, though I did so with regret. Cakobau's son saw me safe on board, and stood waving an affectionate adieu as we left the bank. He is a big and handsome man, and is, I am told, a regular Don Juan. All day long we have been slowly steaming down the river, past rich-looking clearings and by thriving plantations, where, I suppose, white men will live and flourish when the last poor Fijian has passed away for ever. At one place in the broad, but at times shallow river, we steamed through a narrow cutting which had been made years ago by the Fijians to get into another branch of the stream and surprise an enemy. This cutting—put to a very different purpose now—saves time if the steamer takes it on her way to the Rewa mouth. This second stream was very narrow, and we were constantly running into the banks, as it twists and turns very suddenly. Flocks of boys were bathing here, and flung themselves into our wake that they might rise and fall on the mimic waves made by our paddles. The river became very beautiful again when we once more

reached the main stream: grand bush on either side, dense and mysterious, its darker verdure fringed at the water's edge with banks of mangrove of a light and lovely green.

We did not reach the mouth of the river, which is divided into many outlets, until sunset; and navigation amongst the coral reefs and patches which fringe these shores not being practicable at night, we did not try to cross to Ovalau, but steamed a little way out to sea and anchored in the lee of a lovely little islet, covered with a glorious group of palms. Behind this the sun has set most grandly, the trees growing darker and blacker against a sky of tender green, until the full moon has silvered their waving plumes, now that the sky had darkened to its deepest blue. It is a perfect night, and I have kept awake watching the outlines of the Viti Levu Mountains behind me, and of Ovalau's great peak in front, which still are visible, though dim and visionary, unwilling to lose the beauty of the night, as perhaps to-morrow I shall find letters which will call me away for ever from such scenes as this.

Next day I was back in Levuka, and my travels for a time were ended. Every one thinks I have done a rather foolhardy thing in thus crossing Viti Levu alone; and my friends received me gladly, as news has just come down from Nadi that a man has been killed and eaten in Colo. His murder and burial (to put it politely) must have taken place just whilst I was there; and my friends, not knowing whether it was a white man or a native, were very anxious about me. All they could learn was that a man had been killed, cooked, and eaten, and that a native missionary, who had gone on a proselytising journey up amongst them, had been forced, under threats of death, to eat part of

him too, which in my opinion is an exquisite joke. This man, under pretence of going to wash his hands at a stream after the feast, escaped to Nadi, and the story, without details, was brought down here by the *Alarm*.

Although one still hears terrible stories of this kind as happening amongst the Fijians, I greatly question whether it would not be better *for them* to be left completely alone in their old savagedom than to be forcibly invaded by us, settled upon, civilised, and to become——extinct. It is to me a very terrible thought that where we take in one hand knowledge of a better and a higher life, we, with the other, give them death. Sad though it be, yet true it is, that everywhere in Polynesia and Australasia, where the white man has possession, the same tale is told: each census taken shows a less return. In Australia a few years hence—a very few—there will be no aborigine; in Tasmania the work is already done; in New Zealand the noble Maori lingers yet, but as civilisation gradually creeps into his last fastnesses, consumption and other ills unknown before creep with it too, and a few generations hence, should nothing be done to stay it, his race will be as extinct as the dodo or his own gigantic *moa*. From Tahiti and the Sandwich Islands, from the north and from the south, the same tale comes: it seems as though the race were doomed. Though our exertions are for their prosperity—though we legislate for them as for ourselves, though we teach them, educate them, or what we will—the very presence of the white man seems fatal to the brown.

My travels in this part of the world are now, I fear, over, and I am safe in the midst of civilisation once more, sorry that my life of adventure is finished,

but happy in having seen and enjoyed so much. Though the travel is ended and the Pacific and her lovely islands are to me now things of the past, their loveliness is my own, and my bright remembrance of them a possession of which no one can deprive me. To my last day I shall be glad I have visited those golden isles and summer seas, and shall often, in duller climes and more prosaic days, revel in their tropic life and heat and sunshine, for truly—

"A thing of beauty *is* a joy for ever."

THE END.

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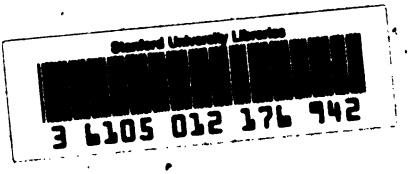

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